

APPENDIX A

ACCELERATING CLEANUP PROJECTS/SUBPROJECTS

OR-28101 PROGRAM DIRECTION

Funding provides for the salaries, benefits, travel, training, telecommunications and computer support, office supplies and equipment, and miscellaneous contractual support required by federal employees in the management and oversight responsibilities related to Environmental Restoration, Waste Management, Technology Development, Nuclear Materials, and Transportation activities.

The U.S. Department of Energy (DOE) full-time equivalents funding in this Project Baseline Summary (PBS) assure consistency and effective management while maintaining compliance with federal and state regulations and DOE orders. Program guidance, oversight, and evaluation of the management and integrating contractor and DOE-direct support contractors are provided by these DOE full-time equivalents.

OR-38101 MIXED LOW-LEVEL WASTE STORAGE

The purpose of this project is to support the achievement and maintenance of compliance with the requirements of the State of Tennessee Commissioner's Order Site Treatment Plan under the Federal Facilities Compliance Act (FFCA) of 1992 signed on September 25, 1995. This project provides for the storage of mixed low-level waste (MLLW) at the three DOE–Oak Ridge Operations Office (DOE-ORO) sites on the Oak Ridge Reservation (ORR)—the East Tennessee Technology Park (ETTP) (formerly known as the Oak Ridge K-25 Site), Oak Ridge National Laboratory (ORNL), and the Y-12 Plant. In addition to supporting the actions to meet the enforceable milestones and targets specified by the Commissioner's Order, MLLW must be stored in compliance with the requirements specified in the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA).

The scope of this project includes storage of MLLW on the ORR until the treatment and disposal of 30,988 cubic meters of MLLW in inventory is completed and the time is reached when MLLW is stored with the sole purpose of accumulating sufficient quantities to facilitate treatment, storage, or disposal. The MLLW streams included in this scope are: wastewater, aqueous waste, incinerable liquids, incinerable solids, non-incinerable solids, inorganic solids and sludges, special waste, and treatment process residues.

The project involves the storage of MLLW on the ORR. MLLW treatment includes storage services from all watersheds. Storage services consist of activities such as monitoring, waste tracking, waste transportation, and waste certification. The subprojects are as follows (the number in parentheses represents the subproject ranking—see Appendix C):

Upper East Fork Poplar Creek

Y-12 Mixed Waste Storage Operations (96)

Oil Dike 7/8 Upgrades (97)

Y-12 Mixed Waste Storage Services (98)

ETTP

RCRA/Mixed/TSCA Storage (103)

21st Century Containers (9129)
ETTP Mixed Waste Storage Services (102)
Central Mixed Waste Storage Services (13)
Bethel Valley
ORNL Mixed Waste Storage Operations (99)
Expand Mixed Waste Storage (101)
ORNL Mixed Waste Storage Services (100)

OR-38102 MIXED LOW-LEVEL WASTE TREATMENT

The purpose of this project is to achieve and maintain compliance with the requirements of the State of Tennessee Commissioner's Order Site Treatment Plan under the FFCA of 1992 signed on September 25, 1995, and the PCB FFCA signed on December 16, 1997. This project provides for the storage of MLLW at the three DOE-ORO sites on the ORR - the K-25 Site, ORNL, and the Y-12 Plant. In addition to the enforceable milestones and targets specified by the Commissioner's Order and the ORR-PCB-FFCA, MLLW must be managed in compliance with the requirements specified in the RCRA and TSCA.

The scope of this project includes the treatment of 17,304 cubic meters of MLLW in inventory and to reach a point when MLLW is stored with the sole purpose of accumulating sufficient quantities to facilitate treatment, storage, or disposal. The MLLW streams included in this scope are: wastewater, aqueous waste, incinerable liquids, incinerable solids, non-incinerable solids, inorganic solids and sludges, special waste, and treatment process residues. This project also includes treatment of ongoing waste generated and treated in existing on-site facilities.

This project involves the treatment of MLLW on the ORR. Facilities utilized to accomplish the goal of reaching the steady-state by the end of Fiscal Year (FY) 2008 include on-site facilities such as the TSCA Incinerator, Central Neutralization Facility (CNF), West End Treatment Facility, as well as commercial treatment and disposal. In addition, other technologies such as polymer filtration, mercury removal from mixed waste solids, mercury recovery from liquid mixed waste, rotary flow filtration, and self-assembled monolayers on ordered mesoporous supports are considered pending funding and technological considerations.

A portion of the treatment costs include support activities such as waste tracking, waste characterization, and waste transportation. MLLW treatment includes storage services from all watersheds. Storage services consist of activities such as monitoring, waste tracking, waste transportation, and waste certification. The subprojects are:

Upper East Fork Poplar Creek
Central Pollution Control Facility Operations (140)
West End Treatment Facility (84)
Groundwater Treatment Facility (168)
Liquid Storage Facility Operations (169)
Central Pollution Control Facility Upgrades (141)

West End Treatment Facility II (control panel replacement) (85)

Drum Cleaning Station Operations (191)

Y-12 Mixed Waste Treatment Services (29)

Repackage West End Treatment Facility Sludges (932)

Repackage CNF Sludge (933)

TSCA Residual (935)

ETTP

Mixed Waste Container Cleaning (192)

TSCA Operations (36)

TSCA Fire Protection Upgrade (35)

CNF Operations (34)

Transportable Vitrification System Operations (42)

TSCA Feed Repacking Demonstration (934)

ETTP Mixed Waste Treatment Services (20)

TSCA Utility Planning and Control (936)

Central Mixed Waste Treatment Services (14)

ORR Private Sector — Treatment Activities (Cost Benefit Analysis) (215)

ORR On-Site Treatment (21)

ORR Private Sector — Broad Spectrum (23)

ORR Private Sector Treatment Activities (209)

ORR RCRA—Rad Balance of Inventory (24)

ORR PCB-Rad Balance of Inventory (22)

ORR MLLW General Plant Projects (18)

Bethel Valley

ORNL Mixed Waste Treatment Services (26)

OR-38103 MIXED LOW-LEVEL WASTE DISPOSAL

The purpose of this project is to achieve and maintain compliance with the requirements of the State of Tennessee Commissioner's Order Site Treatment Plan under the FFCA of 1992 signed on September 25, 1995. This project provides for the disposal MLLW at the three DOE-ORO sites on the ORR—ETTP, ORNL, and the Y-12 Plant. In addition to the enforceable milestones and targets specified by the Commissioner's Order, MLLW must be managed in compliance with the requirements specified in RCRA and TSCA.

The scope of this project includes disposal of MLLW in inventory and to reach a point when MLLW is stored with the sole purpose of accumulating sufficient quantities to facilitate treatment, storage, or disposal. The MLLW streams included in this scope are: wastewater, aqueous waste, incinerable liquids, incinerable solids, non-incinerable solids, inorganic solids and sludges, special waste, and treatment process residues.

This project involves the preparation for and disposal of MLLW on the ORR. Envirocare is the current commercial facility for the disposal of mixed waste that meets the land disposal restrictions treatment standards. Hanford is an alternate disposal facility for waste which cannot go to Envirocare.

MLLW disposal includes the expenses of commercial disposal of mixed waste that meets the land disposal restrictions standards. A portion of the disposal costs include support activities such waste tracking, waste characterization, and waste transportation. The subprojects are:

Upper East Fork Poplar Creek

Private Sector Mixed Sludges (23)

Y-12 Mixed Waste Disposal Services (28)

Dispose West End Treatment Facility Sludges (7)

ETTP

Portsmouth Gaseous Diffusion Plant (PORTS) Soil Disposal (173)

ORR Compressed Gas Cylinder (15)

ETTP Mixed Waste Disposal Services (19)

ORR Mixed Waste Direct Disposal (16)

Central Mixed Waste Disposal Services (12)

Bethel Valley

ORNL Mixed Waste Disposal Services (25)

OR-38104 LOW-LEVEL WASTE STORAGE

The purpose of this project is to support achieving and maintaining an end-state (steady-state) condition in the management of low-level waste (LLW) on the ORR consistent with the objectives of the Discussion Draft and the requirements of DOE Order 5820.2A. This project provides for the storage and treatment, storage, and disposal support of LLW at the three DOE ORO sites on the ORR—ETTP, ORNL, and the Y-12 Plant.

The scope of this project includes the storage of LLW in inventory and new waste to reach a point when LLW is stored with the sole purpose of accumulating sufficient quantities and in a manner to facilitate treatment, disposal, and maximize storage efficiency. The LLW streams included in this scope are: wastewater, containerized inventories of LLW liquids, dry active waste, radioactive scrap metal, process residues, and special waste (includes special-case waste). Capabilities utilized to accomplish the goal of reaching the steady-state by the end of FY 2008 include the storage facilities at the three ORR sites—ETTP, ORNL, and the Y-12 Plant.

Low-level waste storage includes storage services from all watersheds. Storage services consist of activities such as monitoring, waste tracking, waste transportation, and waste certification. The subprojects are:

Upper East Fork Poplar Creek

Y-12 LLW Storage Operations (142)

Y-12 LLW Storage Services (143)

ETTP

Fissile Storage Unit Operations (90)

ETTP LLW Storage Operations (145)

ETTP LLW Storage Services (144)

Central LLW Storage Services (147)

Bethel Valley

Melton Valley Storage Tanks Capacity Increase (33)

ORNL LLW Storage Operations (148)

ORNL LLW Storage Services (146)

OR-38105 LOW-LEVEL WASTE TREATMENT

The purpose of this project is to support achieving and maintaining an end-state (steady-state) condition in the management of LLW on the ORR for treatment, consistent with the objectives of the Discussion Draft and the requirements of DOE Order 5820.2A. This project provides for the treatment of LLW generated at the three DOE ORO sites on the ORR—ETTP, ORNL, and the Y-12 Plant.

The scope of this project includes the storage of 28,547 cubic meters of LLW in inventory and 3,200 cubic meters per year of new waste to reach a point when LLW is stored with the sole purpose of accumulating sufficient quantities and in a manner to facilitate treatment. The LLW streams included in this scope are: wastewater, containerized inventories of LLW liquids, dry active waste, radioactive scrap metal, process residues, and special waste (includes special-case waste). This project involves the treatment of LLW generated on the ORR. Capabilities utilized to accomplish the goal of reaching the steady-state by the end of FY 1999 include on-site compaction facilities, wastewater treatment facilities such as the Process Waste Treatment Complex, the Liquid Low-Level Waste (LLLW) Evaporator, and commercial treatment services which include compaction, incineration, and metal melting for recycling.

Technologies being used in support of LLW treatment include wastewater treatment by evaporation, ion exchange, filter pressing, activated carbon, and air and solidification by grouting. Solid waste technologies include compaction, supercompaction, incineration, and smelting. In addition, other technologies such as polymer filtration, inorganic sorbents for radionuclide sorbents for radionuclide separations, fission product/actinide extraction, comprehensive supernatant treatment, crystalline silicotitanates, and fission products separations will be considered pending funding and other technological considerations. The subprojects are:

Upper East Fork Poplar Creek

Uranium Chip Oxidation Facility (75)

LLW Compaction (212)

Y-12 LLW Treatment Services (76)

ETTP

LLW Compaction (213)

ETTP LLW Treatment Services (78)

Central LLW Treatment Services (77)

ORR LLW Volume Reduction (74)

Bethel Valley

LLLW Routine Operations
Off-Gas Routine Operations (979)
Process Waste Routine Operations (981)
Non-Defense Process Waste Routine Operations (985)
Non-Defense Nonrad Wastewater Routine (984)
Non-Defense Melton Valley LLW—Collection and Transfer (62)
Upgrade Hot Off-Gas System (64)
Federal Facility Agreement (FFA) LLW Tank Compliance (82)
Cs-137 Demonstration (61)
Non-Defense Radiochemical Engineering Development Center Pretreatment (63)
Non-Defense Bethel Valley FFA Line Item and Operating Expense (154)
Non-Defense Bethel Valley LLLW-category Line Item and Operating Expense (155)
LLW General Plant Projects (59)
LLW Evaporator Concentrate (57)
ORNL Treatment Services (60)

OR-38106 LOW-LEVEL WASTE DISPOSAL

The purpose of this project is to support achieving and maintaining an end-state (steady-state) condition in the management of LLW on the ORR consistent with the objectives of the Discussion Draft and the requirements of DOE Order 5820.2A. This project provides for the disposal of LLW generated at the three DOE ORO sites on the ORR—ETTP, ORNL, and the Y-12 Plant.

The scope of this project includes the disposal of 31,311 cubic meters of LLW in inventory and new waste to reach a point when LLW is stored with the sole purpose of accumulating sufficient quantities to facilitate disposal. The LLW streams included in this scope are: wastewater, containerized inventories of LLW liquids, dry active waste, radioactive scrap metal, process residues, and special waste (includes special-case waste). This project involves the disposal of LLW generated on the ORR. Capabilities utilized to accomplish the goal of reaching the steady-state by the end of FY 2010 include on-site disposal facilities such as the Interim Waste Management Facility and commercial disposal services. The subprojects are:

Upper East Fork Poplar Creek

Y-12 LLW Disposal Services (176)

ETTP

ETTP LLW Disposal Services (174)
Central LLW Disposal Services (171)
ORR Nevada Test Site Disposal (172)
ORR Commercial LLW Disposal (173)

Bethel Valley

Solid Low-Level Waste Solid Waste Storage Area (SWSA) Operations (149)
ORNL LLW Disposal Services (175)

OR-38107 TRANSURANIC WASTE STORAGE

The purpose of this project is safe and compliant storage of remote-handled (RH) and contact-handled (CH) transuranic (TRU) waste (solid debris) prior to processing for disposal at the Waste Isolation Pilot Plant.

Two TRU waste streams comprise this project: CH-TRU solids and RH-TRU solids. The scope of this activity is the safe and compliant storage of these waste streams.

The CH-TRU solids are contained in drums (30-, 33-, 79-, and 110-gallon) which are stored in RCRA-permitted storage buildings. The RH-TRU solids are contained in concrete cast canisters and are stored in bunkers which are RCRA permitted. The following technologies including associated cost savings have been incorporated into this project baseline: enhanced nondestructive assay of TRU waste.

TRU waste storage includes storage services from all watersheds. Storage services consist of activities such as monitoring, waste tracking and waste collection, waste staging, and waste transport. The subprojects are:

Bethel Valley

TRU Storage Operations (67)

RH TRU Storage Bunker (991)

CH TRU Storage (989)

TRU Collection & Transport (992)

ORNL TRU Storage Services (66)

K-25

Central TRU Storage Services

OR-38108 TRANSURANIC WASTE TREATMENT (37)

The purpose of this project is to process, certify, and ship approximately 2,300 cubic meters (over the ten-year period) of TRU wastes to the Waste Isolation Pilot Plant or the Nevada Test Site.

Three TRU waste streams comprise this project: CH-TRU solids, RH-TRU solids, and RH-TRU sludges. The state of Tennessee has designated treatment and disposal of these wastes as their No. 1 environmental priority. This project will, through subcontract with the private sector, treat and repackage TRU wastes in accordance with RCRA requirements and the waste acceptance criteria for shipment to the Waste Isolation Pilot Plant or the Nevada Test Site.

The technical approach for treatment and disposal will be determined by the private sector in accordance with DOE's statement of work for these activities. The following technologies including associated cost savings have been incorporated into this project baseline: Bethel Valley Evaporator Storage Tanks Retrieval and Sludge Treatment. In addition, other technologies such as sludge washing

and magnetic seed filtration will be considered pending funding and technological considerations. The subprojects are:

Bethel Valley

RH TRU Liquid/Sludge Incentive Task Order

W Tank TRU Incentive Task Order

C1 & C2 Tank TRU Incentive Task Order

W-22 & W-23 Tank Transfers

C1 & C2 Tank Transfers

Fencing, Road, Utilities for Transuranic Waste Treatment Plant

National Environmental Policy Act for OR Transuranic Waste Treatment Plant

Collection & Transport to Transuranic Waste Treatment Plant

Treatment of RH Sludge

Treatment of RH Solids

Treatment of CH Solids

ORNL TRU Treatment Services

OR-38109 HAZARDOUS DISPOSAL

Hazardous waste management activities performed by Oak Ridge are primarily driven by environmental laws and regulations external to the DOE system. The current Oak Ridge hazardous waste management system provides for proper treatment (could include recycle), storage, and disposal of liquids, chemicals, and solids defined as toxic or hazardous. Hazardous waste is defined in 40 *Code of Federal Regulations (CFR)* 161.3. TSCA waste is defined in 40 *CFR* 761.

This project includes the storage, treatment, and disposal of RCRA, TSCA, and other wastes deemed hazardous (by Tennessee) and cannot be disposed in on-site or off-site landfills. Costs to manage the program (contract administration, administrative activities driven by the regulations, etc.) are included in the project. Other activities provided for in the budget include waste certifications, no-rad-added, and waste tracking.

The management strategy for hazardous and PCB wastes is to collect generator-certified wastes as nonradioactive, treat on-site if facilities exist and are cost effective, and treat/dispose/recycle in private sector (off-site facilities). No-rad-added certification relies on a combined approach of establishing Non-Rad Material Management Areas and direct measurements according to approved procedures. Beginning in 2000, hazardous wastes will be picked up by selected vendors from the site 90-day accumulation areas, thus eliminating the need for permitted storage funding, except in those cases where there is no outlet or wastes are accumulated for economic reasons. The subprojects are:

Upper East Fork Poplar Creek

Y-12 Hazardous Disposal Services (94)

ETTP

ETTP Hazardous Disposal Services (91)

Central Hazardous Disposal Services (95)

ORR Hazardous Waste Treatment/Disposal (92)

Bethel Valley

Hazardous Storage Operations (89)

ORNL Hazardous Disposal Services (93)

OR-38110 SANITARY/INDUSTRIAL DISPOSAL

The Sanitary and Industrial Waste Program provides ongoing sanitary/industrial and construction/demolition waste disposal for the entire ORR. Wastes disposed include wastes received from remedial actions [RAs (i.e., environmental restoration)] and decontamination and decommissioning (D&D) projects, in compliance with all permit requirements as authorized by the Tennessee Department of Environment and Conservation (TDEC) and with other applicable requirements. To do so, the program will provide for the continuing operation of the Sanitary/Industrial and Construction/Demolition Landfills, Spoil Area, and the Sanitary Waste Baler, as well as the transportation of compacted waste and other maintenance and program management activities. The program also provides for those planning and closure activities required by state permits to close the landfills when they are filled to their permitted capacities. These state of Tennessee-permitted facilities are needed to support multiple DOE missions at the Y-12 Plant, ORNL, and ETTP by providing for the disposal of sanitary/industrial and construction/demolition wastes as generated from various day-to-day operations and other projects.

The program will receive, verify, and dispose of sanitary/industrial and construction/demolition wastes at the respective landfills. Associated functions such as operation of the baler and spoil area will be included. Specific program elements include:

- Maintain the ability to dispose up to 88,500 cubic yards of sanitary and industrial wastes annually at the various landfills, distributed as: (1) Landfill IV - 1,200 cubic yards; (2) Landfill V - 42,300 cubic yards; (3) Landfill VI or Landfill VII - 25,000 cubic yards; and (4) Spoils Area - 20,000 cubic yards.
- Maintain the ability to volume reduce up to 46,200 cubic yards of waste at the sanitary baler.
- Provide post-closure care of Landfill II including the closure of the sediment pond.
- Prepare a closure plan for Area 1 at Landfill IV.
- Prepare a closure plan for Landfill VI.
- Initiate a closure for Area 1 at Landfill V.
- Maintain systems, structures, components, and grounds at a level consistent with past experience.
- Perform program management activities including reporting, business management, planning, and regulatory support.
- Perform technical management activities including DOE-Headquarters committee support, special waste request processing, and waste forecasting and landfill quota establishment.

- The scope specifically excludes storage of nonregulated chemical wastes, treatment of sanitary and industrial wastes except for the baler operation, capital improvements, waste characterization, and the transfer of waste to the landfill except for transporting waste from the baler to the landfill.

Landfills for the disposal of sanitary/industrial and construction/demolition debris will be maintained in accordance to the state of Tennessee permit requirements and other applicable requirements including:

- Asbestos wastes is managed in conformance with asbestos regulations contained in 40 *CFR* 61 subpart M (National Emission Standards, 29 *CFR* 1910.1001 Asbestos; Worker Exposure) and Tennessee Management Rule 1200-3-11.
- Landfill permit requirements as states in TDEC's Division of Solid Waste Management Rule 1200-1-7.
- Requirements for landfill outfalls as listed in Y-12 Plant National Pollutant Discharge Elimination System Permit No. TN 0002968.
- DOE Order 5480.19 (Conduct of Operations for DOE Facilities).
- Safety documentation including: (1) Project Hazard Identification Screening for Landfills VII, V, VI, IV; (2) Project Hazard Identification Screening for Landfill V Facilities Building; and (3) Phase I Preliminary Hazard Classification for Landfill II.

The subprojects are:

Upper East Fork Poplar Creek

Landfill Operation/Baler (53)

Landfill V Line Item and Operating Expense (50)

Y-12 Sanitary/Industrial Disposal Services (55)

ETTP

Central Sanitary/Industrial Disposal Services (51)

ORR Special Projects/Sewage Sludge (52)

Bethel Valley

Non-Defense Sanitary Waste Upgrade (54)

OR-38901 BROAD SPECTRUM MLLW TREATMENT

The purpose of this project is to award a MLLW treatment contract for a broad spectrum of mixed waste that is available to all DOE sites.

The scope of this project is to retrieve waste from the generating site, treat the waste, and transport it to the disposal site. Currently, there are roughly 5,300 cubic meters in about 80 separate waste streams on the ORR that will be included in this action. Many other DOE sites have similar waste streams in storage, and some sites continue to generate MLLW with potential to treat 30,000

cubic meters of MLLW from all other DOE sites under this procurement. Budget authority in the PBS allows award of contract(s) with sufficiently large commitments to encourage vendors to enter the mixed waste treatment market. The remaining additional budget authority and the budget outlay is being requested as part of the annual appropriations from Oak Ridge for mixed waste treatment and all other participating DOE sites during the period covered by this Discussion Draft.

The Broad Spectrum Procurement will allow vendors to bid on any or all of five categories of waste according to their capability to treat waste. This promotes maximum competition. Additionally, vendors with robust treatment processes can take advantage of economics of scale by bidding multiple waste categories. Qualified bidders must have applied for or have existing permits and licenses. A maximum of two years is allowed for vendors to obtain all necessary permits and licenses to treat MLLW at their facilities. Up to five fixed price contracts may be awarded (one for each category of MLLW). The vendors will retrieve waste from the DOE site, treat waste at their facility, and transport treated waste to the disposal site. Payment will be made on a unit weight basis for treated waste that meets the disposal criteria specified in the statement of work. Incentive payments for volume reduction will be made based on pre-established performance criteria.

OR-38902 TRU WASTE PRIVATIZATION (38)

The purpose of this project is to accelerate and/or attract the private sector treatment of TRU waste in preparation for final waste disposition. The privatization includes budget for the private sector to recover their capital investment for the treatment and certification of TRU waste stored on the ORR.

Private companies should consider utilizing some of EM-50 technologies developed for tank remediation and demonstrated in the Gunitite and Associated Tanks.

OR-42101 Y-12 UPPER EAST FORK POPLAR CREEK REMEDIAL ACTION

The purpose of the Y-12 East Fork Poplar Creek RA grouping of projects is to address environmental hazards that have been identified within the Upper East Fork Poplar Creek (UEFPC) watershed (the main Y-12 Plant area) and associated waste disposal sites located to the south of the Y-12 Plant on Chestnut Ridge and to take the watershed and associated sites through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process. This grouping of projects also includes all the surveillance and maintenance (S&M) initiatives for all sites in the Y-12 Environmental Restoration listing (includes Bear Creek watershed, UEFPC watershed, and sites on Chestnut Ridge).

The UEFPC watershed is one of five watersheds identified on the ORR which will be taken through the CERCLA process. The ORR is located in a water-rich environment with numerous surrounding water bodies. Each of the main plant areas on the ORR drains into one of the tributaries (e.g., East Fork Poplar Creek) of the Clinch River/Watts Bar Reservoir system. Because of this, water is the dominant media for contaminant transport on the reservation. Therefore, the watershed approach for characterization, implementation of remediation phases, and subsequent monitoring provides a

context in which to prioritize work and evaluate the overall effectiveness and relative contribution of individual RAs.

In the DOE Discussion Draft, the watershed Records of Decision (RODs) have been identified as significant milestones to the success of the plan. All five watershed RODs are to be approved by FY 2000. Because the watershed RODs encompass most of the priority contaminated sites across the ORR, the RAs defined in the RODs will provide the road maps for environmental restoration work on the reservation for years to come. Innovative technologies will be applied as appropriate to support the RA efforts.

The Y-12 East Fork Poplar Creek RA grouping of projects has additional importance because of associated off-site groundwater contamination found just east of the Y-12 Plant underneath privately-owned industrial businesses. The Y-12 Plant is a probable source of some of the contamination found off-site. Initial groundwater usage restrictions will be negotiated as studies continue in the watershed ROD project to identify on-site RAs.

Predecessor Project: In previous budget documents, the UEFPC watershed was divided up into source and integrator operable units (i.e., UEFPC Operable Unit 1, UEFPC Operable Unit 3).

The subprojects are:

- Chestnut Ridge Security Pits (WBS 1.1.01.41). Trenches used for classified waste disposals. Site previously RCRA-closed. CERCLA ROD is prepared proposing No Further Action and adopting postclosure care. (160)
- Filled Coal Ash Pond/Upper McCoy Branch (WBS 1.1.01.42). Pond used for steam plant ash retention. RA of dam stabilization and wetlands reconstruction is nearing completion. (225)
- Chestnut Ridge Sediment Disposal Basin (WBS 1.1.01.43). Landfill used for contaminated sediment disposal. Site previously RCRA-closed. CERCLA ROD is prepared proposing No Further Action and adopting postclosure care. (267)
- Rogers Quarry/Lower McCoy Branch (WBS 1.1.01.44). Water filled quarry used for classified waste disposals and steam plant ash disposals. Existing data are used for remedial investigation/feasibility study (RI/FS) preparation leading to a ROD for institutional controls and water monitoring. (228)
- East Chestnut Ridge Waste Pile (WBS 1.1.01.45). RCRA waste pile for contaminated soils. RCRA clean closure is conducted followed by preparation of a CERCLA No Further Action ROD. (249)
- Arboretum Spring (WBS 1.1.01.46). Off-site spring. Possible location of contaminated groundwater discharge from on-site source. Off-site wells (6) are installed and sampled to support RI/FS preparation. CERCLA ROD proposes spring and well monitoring. (277)
- UEFPC Watershed ROD (WBS 1.1.03.41). Watershed of main Y-12 Plant Area. This industrial plant area has complicated history and complex environmental setting leading to multiple

contaminant sources and commingled groundwater and surface water contamination. Preparation of remedial investigation (RI) report, feasibility study (FS), Proposed Plan, and ROD. (11)

- Reduction of Mercury in Plant Effluents (WBS 1.1.03.44). Focused subprojects in main Y-12 Plant Area to remove mercury loading on UEFPC. Mercury is a legacy contaminant from lithium-enrichment process and large quantities of mercury were lost from the process to the environment. Two water treatment plants and one pilot air-stripping plant are in operation and several pipe reroutes have been completed. (47)
- RCRA Closures (WBS 1.1.03.45). Three RCRA-regulated storage units. Garage Underground Storage Tanks - RCRA clean closure has been certified. Bldg. 9409-5 Diked Tank Storage Area - RCRA clean closure has been certified. Interim Drum Yard - RCRA closure has been completed, remnant soil contamination has been deferred to the UEFPC Watershed ROD project. (233)
- UEFPC East End Dense Nonaqueous-Phase Liquid Plume (WBS 1.1.03.50) Area has groundwater contamination contributing to off-site migration of carbon tetrachloride. Five extraction wells and treatment systems and 10 monitoring wells are constructed to capture plume and cut off contaminant migration. (186)
- UEFPC Sumps (WBS 1.1.03.51) Existing building sumps (6) collect contaminated shallow groundwater plumes and discharge to UEFPC. Project constructs 8,000 ft of piping to collect water and transfer to treatment plants prior to discharge. (261)
- UEFPC Sub-basin (WBS 1.1.03.52) Eleven subbasins in Y-12 Plant storm water collection system make up the UEFPC watershed. Subbasins E, I and J contribute greatest contaminant load to UEFPC. Low volume, high concentration streams are identified and treated at 40 gpm rate prior to discharge. (218)
- UEFPC Hydraulic Isolation and Groundwater Treatment (WBS 1.1.03.53). Localized volatiles-contaminated groundwater plumes have been identified in the main Y-12 Plant area. Three production wells and treatment systems and six monitoring wells are constructed. Water is treated by filtration, air stripping and carbon absorption at a rate of 5 gpm per well. (210)
- UEFPC Shallow Groundwater (WBS 1.1.03.54). Localized volatiles-contaminated shallow groundwater plumes have been identified in the main Y-12 Plant area. Four reactive gates using zeolite, peat moss or zero-valence metals have been constructed to intercept plumes prior to surface water discharge. (199)
- UEFPC Soil Remediation (WBS 1.1.03.55). Soils contamination from spills, leaking tanks and run-off from contaminated material has been identified in the main Y-12 Plant area. Capping 10 acres and excavating 5,000 cubic yards of soils are included in this RA. (246)
- UEFPC Storm Sewer (WBS 1.1.03.56). Remnant mercury-contaminated and radiologically contaminated sediment act as a secondary source of contaminant loading from the Y-12 Plant storm sewer system into UEFPC. Storm sewer piping (2,000 ft) is cleaned out and relined and 50 cubic yards of contaminated sediment is removed. (217)
- UEFPC Coal Pile Trench and Beta-4 Security Pits (WBS 1.1.03.59). Classified waste disposal area trenches located within the main Y-12 Plant area. Waste is removed and placed in the EM Waste Management Facility. (252)

- UEFPC Underground Storage Tank Legacy Remediation (WBS 1.1.03.62). Former location of Y-12 Plant garage. Leaking underground storage tanks have been removed. Remnant LNAPL plume is injected with organic nutrients to enhance bioremediation. (259)
- Y-12 RA Surveillance & Maintenance (WBS 1.1.06.111.42). Routine tasks to ensure sites remain in compliance with established criteria that protect human health, the environment, and DOE assets. Also includes special, one-time site stabilizations to realize cost-reduction, risk-reduction or meet management initiatives. (126)
- Y-12 Decommissioning Surveillance & Maintenance (WBS 1.2.01.111.04). Routine tasks to ensure D&D facilities remain in compliance with established criteria that protect human health, the environment, and DOE assets. Also includes special, one-time facility stabilizations to realize cost-reduction, risk-reduction or meet management initiatives. (136)
- Y-12 Long Term Surveillance & Maintenance (WBS 1.4.01.01). Maintenance and operation of treatment systems or caps constructed to mitigate environmental liabilities. Monitoring of effectiveness of treatment systems or caps. Site inspections. (125)

OR-42102 Y-12 BEAR CREEK REMEDIAL ACTION

The purpose of the Y-12 Bear Creek RA grouping of projects is to address environmental hazards that have been identified within the Bear Creek watershed (waste management areas west of the main Y-12 Plant area) and to take the watershed and associated sites through the CERCLA process. Another PBS, the Y-12 East Fork Poplar Creek RA grouping of projects (OR-42101) includes all the S&M initiatives for all sites in the Y-12 Environmental Restoration listing (includes Bear Creek watershed).

The ORR is located in a water-rich environment with numerous surrounding water bodies. Each of the main plant areas on the ORR drains into one of the tributaries (e.g., Bear Creek) of the Clinch River/Watts Bar Reservoir system. Because of this, water is the dominant media for contaminant transport on the reservation. Therefore, the watershed approach for characterization, implementation of remediation phases, and subsequent monitoring provides a context in which to prioritize work and evaluate the overall effectiveness and relative contribution of individual RAs.

In the DOE Discussion Draft, the watershed RODs have been identified as significant milestones to the success of the plan. All five watershed RODs are to be approved by FY 2000. Because the watershed RODs encompass most of the priority contaminated sites across the ORR, the RAs defined in the RODs will provide the road maps for environmental restoration work on the reservation for years to come. Innovative technologies will be applied as appropriate to support the RA efforts.

Predecessor Project: In previous budget documents, the Bear Creek watershed was divided up into source and integrator operable units (i.e., Bear Creek Operable Unit 1, Bear Creek Operable Unit 4).

Six of the seven projects in this grouping are associated with the Bear Creek Valley Characterization Area and include the Watershed ROD project and five associated forecast RA projects. The White Wing Scrap Yard project will have a separate CERCLA ROD. The subprojects are:

- Bear Creek Valley Watershed ROD (WBS 1.1.02.41). Watershed west of main Y-12 Plant Area, containing numerous burial grounds. This waste management area has a complicated history and a complex environmental setting leading to multiple contaminant sources and commingled groundwater and surface water contamination. Preparation of RI report, FS, Proposed Plan, and ROD. (7)
- Bear Creek Valley Groundwater Remediation (WBS 1.1.02.50). Leachate production from burial grounds has resulted in large contaminated groundwater plumes and subsequent migration of contamination into Bear Creek. Extraction wells (10) and treatment systems are constructed to capture plumes and mitigate contaminant migration. (208)
- Bear Creek Valley Tributary Interception (WBS 1.1.02.51). Liquid wastes and leachate production from the S-3 disposal ponds have resulted in contaminated groundwater plumes and subsequent migration of contamination into Bear Creek and its westernmost tributaries. Interception trenches with reactive media are constructed to capture plumes and mitigate contaminant migration. An Action Memorandum, an RAWP, and a Removal Action Report have been prepared. (6)
- Bear Creek Valley Boneyard/Burnyard (WBS 1.1.02.52). Former scrap equipment lay-down area and burn/burial trenches. Pervasive surface and shallow contaminated soil presents source of contaminated run-off and worker exposure. Soil excavation and soil consolidation and capping are conducted to isolate contaminants from water. (4)
- Bear Creek Valley Burial Grounds (WBS 1.1.02.53). Solid and liquid wastes disposed of in a series of unlined trenches. Diversion ditches are constructed upgradient of trenches, trenches are capped and leachate collection ditches downgradient of trenches are constructed. (5)
- Bear Creek Valley Floodplain and Sediments (WBS 1.1.02.54). Contaminant migration and contaminated groundwater discharge into Bear Creek has resulted in hot-spot-contaminated floodplain soil and creek sediments. Excavation occurs to protect ecological receptors. (253)
- White Wing Scrap Yard (WBS 1.1.02.64). Former burial and equipment lay-down area. A CERCLA ROD requires a 4-acre asphalt cap. (238)

OR-43201 ORNL WHITE OAK CREEK REMEDIAL ACTION

ORNL is a multidisciplinary research facility that began operation in 1943 as part of the Manhattan Project. The original mission of the laboratory was to develop a prototype graphite reactor and reactor fuel reprocessing facility. Subsequent to World War II, ORNL functions have expanded to include fuel reprocessing research, radioisotopes production and applications development; nuclear reactor development, testing, and operation; and biological, environmental, energy, and materials research. As a result of these multidisciplinary research activities, the environment has become contaminated because of leaks, spills, and past waste disposal practices. During the period from 1955 to 1963, Oak Ridge was designated by the U.S. Atomic Energy Commission as the Southern Regional Burial Ground and received a wide variety of wastes from approximately 50 different sources.

All of the surface water at ORNL drains into White Oak Creek and then into the Clinch River. The purpose of the White Oak Creek (WOC) RA Project is the environmental restoration of all contaminated areas located in the lower half (Melton Valley) of the WOC watershed. The project scope includes remediation of contaminated soil, sediment, surface water, groundwater, settling ponds, waste burial grounds, and liquid waste seepage pits and trenches. Innovative technologies will be applied as appropriate to support the RA efforts. Active operating facilities and inactive D&D facilities are located in the same geographic area but are not considered in the scope of this project.

The WOC RA Project contains 123 contaminated release sites, as well as contaminated environmental media such as soil, surface water, and groundwater. The release sites include: (a) six liquid waste collection ponds (Old Hydrofracture Facility, Process Waste Sludge Basin, High Flux Isotope Reactor) with contaminated sediments; (b) seven shallow unlined pits and trenches used for disposal of radioactively contaminated liquid waste; (c) secondary contaminated media associated with above pits and trenches; (d) fuel wells containing liquid fuel from Homogeneous Reactor Experiment; (e) grout sheets associated with Old Hydrofracture Facility and New Hydrofracture Facility; (f) three inactive LLW tanks and associated piping and equipment; (g) filled-in radioactive waste settling pond; (h) four hydrofracture injection wells and 46 monitoring wells associated with the hydrofracture operations; (i) three radioactive waste burial grounds covering a total of 70 acres and containing a wide variety of waste from more than 50 generators in the southeast United States; (j) WOC and tributaries, White Oak Lake, WOC Embayment, and all containing contaminated sediments and floodplain soils; (k) five inactive tanks containing mixed TRU sludge; and (l) other release sites.

The remediation of these release sites and contaminated media is governed by the ORR FFA, which integrates RCRA and CERCLA requirements and designates CERCLA as the overall process for decision making. A single ROD is prepared to cover RA of all contaminated areas and release sites within the lower half of the WOC watershed. Preparation of the RI report with limited data collection, FS, and the Proposed Plan for the watershed are also included in the scope of this project. D&D decisions for all facilities in Melton Valley that belong to the D&D Program are also included in the ROD. Implementation of the D&D field activities after the ROD is not included in this project (scope is included in PBS OR-43202). Implementation of the RA activities covered by the ROD is included in this project. The subprojects are:

- WOC Remediation (WBS 6.1.02.43). The WOC system, consisting of WOC, its tributaries, White Oak Lake, and the WOC Embayment on the Clinch River, is the primary surface water drainage for ORNL. Contaminated floodplain soils and sediments are removed or stabilized in place as necessary to meet risk and regulatory requirements. Excavated soils and sediments are placed in White Oak Lake. All sediments in White Oak Lake and WOC Embayment are grouted in place and the lake is filled with soil. The lower portion of WOC is rerouted. (106)
- WOC Watershed ROD (WBS 6.1.02.45). Project uses historical data and limited amount of new data to prepare the RI/FS, Proposed Plan, and ROD for all of the contaminated areas in Melton Valley that lie within the boundaries of the WOC Watershed. Implementation of the selected actions is carried out in other projects. (3)
- Melton Valley Contaminated Soils (WBS 6.1.02.47). Includes excavating 2 contaminated soil areas, grouting 5 soil areas in place, and removing or grouting inactive pipelines. (237)

- SWSA 4 Seep Control (WBS 6.1.02.21). Trenches associated with Seeps 4 and 6 at SWSA 4 have been grouted to immobilize the contaminants and reduce contamination levels in the seeps near the creek. (108)
- SWSA 4 Remediation (WBS 6.1.04.21). SWSA 4 is a 23 acre radioactive disposal site that used trench disposal from 1951 to 1959. The selected remedy is hydrologic isolation including a downgradient drain, grouting of selected trenches, a cap, and upgrades to the current surface water diversion system. A groundwater treatment facility is constructed and shared with other Melton Valley projects. (107)
- SWSA 5 North and South Remediation (WBS 6.1.05.41). SWSA 5 was used as a radioactive disposal area from 1959 to 1973. Remediation of SWSA 5 consists of hydraulic isolation of buried waste in trenches in 27 acres in SWSA 5 South, and 3/4 acre in SWSA 5 North. Hydrologic isolation is accomplished using multilayer caps, up-gradient cutoff walls, and downgradient French drains. (150)
- Old Hydrofracture Facility Tanks (WBS 6.1.05.20). Liquid and sludge is removed from 5 inactive liquid low-level waste tanks at the Old Hydrofracture facility. The sludge is moved to the Melton Valley Storage Tanks, for later treatment with similar sludges already in the Melton Valley Storage Tanks. (128)
- Old Hydrofracture Facility Pond (WBS 6.1.05.43). The Old Hydrofracture Facility Pond has a capacity of 100,000 gallons and was used as an emergency storage basin for contaminated grout during hydrofracture operations. Contaminated sediments in the pond are grouted in place and the pond is filled with soil, graded, and seeded. (127)
- Process Waste Sludge Basin (WBS 6.1.05.44). The Process Waste Sludge Basin is a 0.17 acre, polyvinyl chloride-lined basin. Radioactively contaminated sediments in the basin is grouted in place and the basin is filled with soil, graded, and seeded. (226)
- ORNL Remediation Technology Demonstration (WBS 6.1.06.02). The scope of this project is a cryogenics demonstration project. A cryogenic barrier is placed around a filled-in settling pond associated with the inactive Homogeneous Reactor Experiment. The purpose of the barrier is to stop migration of contaminated groundwater into WOC. (81)
- LLLW Disposal Pits and Trenches (WBS 6.1.07.20). During the period from 1951 to 1966, ORNL disposed of radioactively contaminated liquid waste by piping the waste to unlined seepage pits and trenches in Melton Valley. Remediation of the pits and trenches includes in situ vitrification of pits 1,2,3,4 and trenches 5,6,7. (79)
- Pits and Trenches Secondary Sources (WBS 6.1.07.42). After in situ vitrification of the pits and trenches is complete, this project addresses secondary contamination in surrounding soil areas and seeps. Planned remediation involves grouting pipelines, a collection system for four seeps, and hydrologic capping. (80)
- High Flux Isotope Reactor Collection Basins (WBS 6.1.08.40). Radioactively contaminated sediments from four basins are excavated and moved to the on-site waste management facility. (242)

- Homogeneous Reactor Experiment Pond (WBS 6.1.09.40). The pond is a filled-in settling basin containing radioactively contaminated sediments. In situ vitrification of the pond area will control migration of the contaminants. (194)
- Hydrofracture Injection/Monitoring Wells (WBS 6.1.10.43). Four deep hydrofracture wells at ORNL were used to inject waste grout mixtures into shale fractures at depths of 300 to 1000 feet underground. Remediation of the injection wells consists of milling out the top 300 ft of casing and pressure grouting the wells from bottom to top. Some of the 46 monitoring and observation wells are upgraded for long-term use to monitor the hydrofracture grout sheets. The remaining wells undergo plugging and abandonment by pressure grouting. (177)
- ORNL RA Surveillance & Maintenance (WBS 6.1.14.01). This project covers the S&M activities required for the ORNL RA sites until remediation is complete. (123)
- ORNL Long Term Surveillance & Maintenance (WBS 6.4.01.01). This project covers the surveillance, operations, and maintenance needed after remediation or D&D is complete. (122)
- SWSA 6 Remediation (WBS 6.1.06.41). SWSA 6 covers about 68 acres, approximately 19 of which have been used for radioactive waste disposal. The planned remediation consists of installation of cutoff walls and 32 acres of cap to provide hydrologic isolation. (236)
- Homogeneous Reactor Experiment/Molten Salt Reactor Inactive Tanks. Three inactive liquid low-level waste tanks associated with the Molten Salt Reactor Experiment (MSRE) and Homogeneous Reactor Experiment are grouted in place. (195)

OR-43202 ORNL WHITE OAK CREEK D&D

ORNL is a multidisciplinary research facility that began operation in 1943 as part of the Manhattan Project. The original mission of the laboratory was to develop a prototype graphite reactor and reactor fuel reprocessing facility. Subsequent to World War II, ORNL functions have expanded to include fuel reprocessing research, radioisotopes production and applications development; nuclear reactor development, testing, and operation; and biological, environmental, energy, and materials research. Many inactive facilities that were used for these research and development activities require D&D. These facilities include research reactors, auxiliary buildings and equipment, and the surface facilities associated with the Old Hydrofracture Facility, where radioactive waste mixed with grout was injected 900-1200 feet underground into fractured shale. These buildings have been inactive for any years and contain contaminated equipment. As the buildings age and begin to deteriorate, there is an increasing risk that contamination can migrate, causing risks to ORNL works and the environment. The purpose of the WOC D&D Project is the D&D of inactive facilities located in the Melton Valley area of ORNL.

The WOC D&D Project contains 20 contaminated inactive facilities plus the fuel salt associated with the Molten Salt Reactor. These facilities include: (a) MSRE, an 8-MW nuclear reactor fueled with uranium fluoride and other salts which were heated until molten; (b) six auxiliary buildings/facilities associated with MSRE including office building, cooling tower, stack; (c) Homogenous Reactor Experiment, the first aqueous experimental research reactor; (d) six auxiliary facilities associated with the Homogeneous Reactor Experiment including cooling tower, waste

evaporator, and decon shed; (e) surface facilities associated with the first hydrofracture waste disposal operations (Old Hydrofracture Facility) at ORNL including mixer cell, injection pump cell, and wellhead cell; and (f) five shielded transfer tanks used to transport high-specific activity radioactive solutions by rail.

The D&D of these facilities is governed by the ORR FFA, which integrates RCRA and CERCLA requirements and designates CERCLA as the overall process for decision making. The FFA also contains a rolling set of three-year enforceable milestones for projects. Decision documents for the D&D buildings in this project are included in the WOC Watershed ROD (WOC RA, PBS OR-43201), but implementation of the D&D projects is covered by this project. Remediation of environmental media in the vicinity of the D&D buildings is covered by WOC RA (PBS OR-43201). The subprojects are:

- ORNL Decommissioning Surveillance & Maintenance. This project covers the S&M activities required to maintain facilities until D&D is complete. (135)
- MSRE Fuel Salt Removal (WBS 6.2.01.05). MSRE was an 8-MW nuclear reactor fueled with uranium fluoride and other salts which were heated until molten. Elevated readings at the MSRE indicated potential migration of radioactive contamination outside the fuel drain tank cells. Three projects were initiated to (1) remove the U-233 and reactive gases from the piping systems and (2) stabilize or remove and (3) dispose of the fuel and flush salts from the MSRE facility. (8)
- Homogeneous Reactor Experiment (WBS 6.2.01.10). The Homogeneous Reactor Experiment, constructed in 1951, circulated a homogeneous fuel composed of enriched uranium in uranyl sulfate and other chemicals dissolved in heavy water. Auxiliary facilities included a waste evaporator, cooling tower, and equipment associated with filters and liquid low-level waste tanks. Buildings are dismantled to grade, and below grade contaminated equipment is removed. Contaminated materials are sent to the on-site waste management facility, and the remaining debris is grouted into the subsurface cells of the reactor building. (206)
- Old Hydrofracture Facility (WBS 6.2.01.13). The Old Hydrofracture Facility consists of the surface facilities (mixer cell, injection pump cell, wellhead cell, pump house, waste pit, and four uncontaminated bulk-solids storage bins) associated with the first hydrofracture operations at ORNL. All buildings except the wellhead cell are dismantled and sent to the on-site waste management facility. Steel is recycled. The wellhead cell must remain intact until the HF-3 injection well plugging and abandonment is complete. (239)
- MSRE D&D (WBS 6.2.01.22). MSRE was an 8-MW nuclear reactor fueled with uranium fluoride and other salts which were heated until molten. D&D is accomplished by the demolition of the MSRE Reactor building and six associated facilities. The MSRE Office building and high bay area are preserved for potential reuse. Contaminated materials are treated as necessary and sent to the on-site waste management facility. Remaining debris is grouted into the subsurface cells of Building 7503. (250)
- Shielded Transfer Tanks. The shielded transfer tanks are five obsolete shipping cases used to transport high specific activity radioactive solutions. The tanks are decontaminated, dismantled, and sent to the on-site waste management facility. (273)

OR-43203 ORNL BETHEL VALLEY REMEDIAL ACTION

ORNL is a multidisciplinary research facility that began operation in 1943 as part of the Manhattan Project. The original mission of the laboratory was to develop a prototype graphite reactor and reactor fuel reprocessing facility. Subsequent to World War II, ORNL functions have expanded to include fuel reprocessing research, radioisotopes production and applications development; nuclear reactor development, testing, and operation; and biological, environmental, energy, and materials research. As a result of these multidisciplinary research activities, the environment has become contaminated because of leaks, spills, and past waste disposal practices.

All of the surface water at ORNL drains into White Oak Creek and then into the Clinch River. The purpose of the Bethel Valley RA Project is the environmental restoration of contaminated areas located in the upper half of the WOC watershed. Innovative technologies will be applied as appropriate to support the RA efforts. Bethel Valley is the location of the main plant area at ORNL and contains active operating research facilities intermingled with D&D facilities and areas requiring environmental restoration. The project scope includes remediation of contamination soil, sediment, surface water, groundwater, settling ponds, waste burial grounds, and inactive LLLW tanks. Active operating facilities and inactive D&D facilities are located in the same geographic area but are not considered in the scope of this project. Selection of the preferred remedy for the D&D projects is included in the Bethel Valley Watershed ROD, which are prepared as part of this PBS. Field activities for the D&D projects are not included in this PBS but are covered under PBS OR-43204, Bethel Valley D&D.

The Bethel Valley RA Project contains 82 contaminated release sites, as well as contaminated environmental media such as soil, surface water, and groundwater. The release sites include: (a) twelve gunite tanks with contaminated sludges; (b) fourteen steel inactive LLLW tanks, some with residual contaminated sludges; (c) four surface impoundments with contaminated sediments; (d) three radioactive waste burial grounds (one mostly remediated); (e) construction debris landfill; (f) 39 contaminated soil areas including 4 mercury contaminated areas; and (g) other.

The remediation of these release sites and contaminated media is governed by the ORR FFA, which integrates RCRA and CERCLA requirements and designates CERCLA as the overall process for decision making. The FFA also contains a rolling set of three-year milestones for projects. A single ROD is prepared to cover RA of all contaminated areas and release sites within the upper half of the WOC watershed. Preparation of the RI report with limited data collection, the FS, and the Proposed Plan for the watershed are also included in the scope of this project. Decisions and implementation in this valley are complex because this area includes the main plant area at ORNL, which contains many active operating facilities. Several thousand employees work in the main plant area. D&D decisions for all environmental restoration facilities in Bethel Valley are made by the Bethel Valley Watershed ROD, but implementation of the D&D projects is not included in this project (scope is included in PBS OR-43204). Implementation of the RA activities covered by the ROD is included in this project that belongs to the D&D Program are also included in the ROD. Implementation of the D&D field activities after the ROD is not included in this project (scope is included in PBS OR-43202). Implementation of the RA activities covered by the ROD is included in this project. The subprojects are:

- ORNL Main Plant Inactive Tanks (WBS 6.1.01.21). Remediation of 9 inactive liquid low-level waste tanks in the ORNL main plant. Some tanks contain residual liquid or sludges. Eight tanks are grouted in place and one tank is removed for metal recycle. (204)
- Gunitite and Associated Tanks (WBS 6.1.01.41). Sixteen inactive liquid low-level waste tanks (12 Gunitite and 4 stainless steel) in the ORNL main plant. Liquids and sludges are removed from all but one tank. Sludges in one tank are mixed with grout inside the tank. All tanks are filled with grout after contents removed or stabilized. (9)
- ORNL Main Plant Surface Impoundments (WBS 6.1.01.42). Four inactive surface impoundments in the ORNL main plant are remediated. Contaminated sediments from all four impoundments are consolidated in a clay-lined cell located in the present location of one of the impoundments. Sediments are dewatered but not treated. (132)
- ORNL Main Plant Area Groundwater Operable Unit (WBS 6.1.01.44). The FY 97 scope of this project is to complete analysis of samples collected in FY 96 and to write a completion report for the project. Future activities associated with main plant area groundwater are included in the scope of other projects. (48)
- SWSA 1 Remediation (WBS 6.1.01.46). SWSA 1 is a 1-acre area that was used in 1944 for radioactive disposal. Remediation consists of hydrologic isolation consisting of cap, slurry wall, French drain, and piping to conduct collected groundwater to the ORNL Process Waste Treatment Facility. (275)
- Bethel Valley Contaminated Soils (WBS 6.1.01.49). Scope is remediation of contaminated soil areas in Bethel Valley. Excavation of mercury-contaminated soil areas, with excavated soil to undergo acid washing process to remove mercury. Three radiologically contaminated soil areas to be excavated. All excavated soil to on-site waste management facility. Five contaminated soil areas grouted in place. WOC floodplain soils and sediments stabilized or removed as necessary. Inactive pipelines removed or stabilized in place. (180)
- Corehole 8 Plume Source (WBS 6.1.01.53) A previous project intercepted a Sr-90 contaminated groundwater plume before it entered First Creek. This project grouts the soil around inactive LLLW tank W-1A, the presumed source of the plume. Low-volume pumps are installed in existing wells to extract water from the plume to retard further migration of the plume. An Engineering Evaluation/Cost Analysis and an Action Memorandum are prepared. (187)
- Bethel Valley Watershed ROD (WBS 6.1.02.46). This project uses historical data and collects some supplementary new data to prepare the RI/FS, Proposed Plan, and ROD for all of the contaminated areas in Bethel Valley. Implementation of the selected actions is carried out in other projects. (2)
- SWSA 3 Remediation (WBS 6.1.03.40). SWSA 3 is a 6.1 acre area used for radioactive disposal from 1946 to 1951. The project also includes a 4-acre buried scrap metal area and a 7-acre contractor's landfill for construction debris and fly ash. RAs include grouting of selected trenches, and capping of SWSA 3 and the contractor's landfill. Also included are improvement to storm flow control to reduce infiltration. (201)

OR-43204 ORNL BETHEL VALLEY D&D

ORNL is a multidisciplinary research facility that began operation in 1943 as part of the Manhattan Project. The original mission of the laboratory was to develop a prototype graphite reactor and reactor fuel reprocessing facility. Subsequent to World War II, ORNL functions have expanded to include fuel reprocessing research, radioisotopes production and applications development; nuclear reactor development, testing, and operation; and biological, environmental, energy, and materials research. Many inactive facilities that were used for these research and development activities require D&D. These facilities include research reactors, auxiliary buildings and equipment, isotopes processing buildings, and other radioactively-contaminated structures. These buildings have been inactive for many years and contain contaminated equipment. As the buildings age and begin to deteriorate, there is an increasing risk that contamination can migrate, causing risks to ORNL workers and the environment. The purpose of the Bethel Valley D&D Project is the D&D of inactive facilities located in the Bethel Valley area of ORNL. The Bethel Valley area includes the main plant area of ORNL, which will remain an active research laboratory for the foreseeable future.

The Bethel Valley D&D Project contains 27 contaminated facilities. These facilities include: (a) Metal Recovery Facility, a one-story building with seven above-grade process cells used for the recovery of uranium and other materials from fuel and waste; (b) Fission Product Development Laboratory inactive cells consist of five cells and the service tunnel, which are inactive portions of the Fission Product Development Laboratory, used to separate kilocurie quantities of Cs-137, Sr-90, and other isotopes from waste streams from Hanford; (c) Fission Product Pilot Plant, a small building used to extract various isotopes from aqueous fission product waste; (d) Low-Intensity Reactor, a 3-MW early research reactor, and associated facilities/buildings; (e) Oak Ridge Graphite Reactor, an air-cooled, graphite-moderated reactor and associated buildings/facilities; (f) High-Level Chemical Development Laboratory, a laboratory and small-scale pilot plant for development studies of reactor-fuel processing; separation and recovery of TRU material, and separation of fission products from aqueous waste; and (g) Oak Ridge Research Reactor, a 30-MW research reactor and associated buildings/facilities.

The D&D of these facilities is governed by the ORR FFA, which integrates RCRA and CERCLA requirements and designates CERCLA as the overall process for decision making. The FFA also contains a rolling set of three-year enforceable milestones for projects. Decision documents for the D&D buildings in this project are included in the Bethel Valley Watershed ROD (Bethel Valley RA, PBS OR-43203), but implementation of the D&D projects is covered by this project. Remediation of environmental media in the vicinity of the D&D buildings is covered by Bethel Valley RA (PBS OR-43203). Decisions and implementation in this valley are complex because this area includes the main plant area at ORNL, which contains many active operating facilities. Several thousand employees work in the main plant area. The subprojects are:

- Metal Recovery Facility (WBS 6.2.01.08). The Metal Recovery Facility is a one-story building with seven above-grade process cells used for the recovery of uranium and other materials from fuel and waste. D&D was partially completed in the 1980s. Limited decontamination of the cell walls is performed prior to demolishing the building to grade. Contaminated debris is sent to the

on-site waste management facility, and the remaining rubble is moved to the Oak Ridge Research Reactor basement and used as fill. (220)

- Fission Product Development Laboratory Inactive Cells (WBS 6.2.01.09). Facility used to separate kilocurie amounts of fission products from waste streams from Hanford. Only five inactive cells and the service tunnel are included in this project. Process equipment is removed and sent to the on-site waste management facility. Cells are decontaminated and returned to the owner of the remainder of the building. (258)
- Fission Product Pilot Plant (WBS 6.2.01.11). Fission Product Pilot Plant is a small building used to extract isotopes from aqueous fission product waste. At the completion of operations, the building was enclosed by block walls, leaving no access to the building. A limited characterization in 1994 measured high radiation fields inside the facility. The project scope is to dismantle the building and send equipment and debris to on-site waste management facility. (202)
- Low Intensity Test Reactor (WBS 6.2.01.14). A 3-MW early research reactor. The scope consists of dismantling the reactor building, the demineralized water building, and the water-to-air heat exchanger. Contaminated equipment and debris are sent to the on-site waste management facility. Remaining debris is grouted into subsurface areas of the Oak Ridge Research Reactor. (244)
- Oak Ridge Graphite Reactor (WBS 6.2.01.15). The Graphite Reactor was an air-cooled, graphite-moderated reactor fueled with natural uranium. The Graphite Reactor has been designated a Registered National Historic Landmark, which requires preservation of much of the facility during D&D. The internals of the reactor core are removed, preserving the outer shell. Unnecessary equipment is removed. Contaminated materials are sent to the Environmental Management (EM) on-site waste facility. (211)
- High-Level Chemical Development Laboratory (WBS 6.2.01.16). Laboratory and small-scale pilot plant for development of reactor fuel processing; separation and recovery of TRU materials; and separation of fission products from aqueous waste. The scope includes removal of equipment and utilities; demolition of entire building including the slab; and cutting and capping of underground services. Contaminated debris is sent to the on-site waste management facility. (243)
- Oak Ridge Research Reactor (WBS 6.2.01.23). The Oak Ridge Research reactor facility consists of the reactor building, support buildings, and experimental facilities. The building is dismantled to grade and contaminated equipment removed from below grade areas. Contaminated materials are sent to the on-site waste management facility. Remaining debris is grouted into the subsurface cells. (245)

OR-44901 ON-SITE WASTE MANAGEMENT FACILITY

Options for permanent disposal of ORR environmental restoration waste are being evaluated under a CERCLA RI and FS. The RI will use existing data to quantify and characterize the waste that will be generated from future CERCLA remediation and D&D activities. It will also include a description and the results of a risk evaluation performed using this information. The FS will develop

and evaluate the waste management alternatives for the CERCLA wastes on the ORR. The alternatives under evaluation consist of (a) “no action,” (2) “off-site disposal,” and (3) “on-site disposal.” For the on-site disposal alternative, a site screening study, preliminary cell design, and an evaluation of cell designs are performed. Protection of human health and the environment are assessed for each of the alternatives using CERCLA guidelines and appropriate DOE policy and guidance. The RI/FS will incorporate National Environmental Policy Act values in a manner that is consistent with DOE Secretarial policy. The preferred alternative will be presented in a proposed plan that will be released for public review and comment.

The scope of the on-site disposal alternative includes the construction and operation of a new On-Site Waste Management Facility on the ORR. This waste management facility would include an on-site disposal cell for the disposal of CERCLA program waste generated on the ORR. The disposal facility will be sized to be capable of receiving projected volumes from future environmental restoration (including D&D) waste streams. The facility will be designed to meet applicable federal, state, and local regulations.

OR-44301 ETTP REMEDIAL ACTION

The purpose of the ETTP RA Project is to address environmental hazards that have been identified within the ETTP watershed and the waste sites associated with it, and to complete the CERCLA activities required for all of these sites. The boundaries of the ETTP watershed are Black Oak Ridge on the north, West Pine Ridge on the south, Clinch River to the west. The eastern boundary is comprised of Blair Road, Highway 58, and Highway 95. ETTP is located in Roane County in Eastern Tennessee, near the town of Oak Ridge. After World War II, the uranium enrichment operations were continued to supply uranium for nuclear reactors. All enrichment operation stopped in 1985. ETTP has been part of the Oak Ridge Environmental Restoration program since its inception in 1990. Several projects have been scoped and implemented during this time period in order to reduce the hazards remaining from uranium enrichment operations. This PBS describes the scope of the subprojects that will address the remaining contamination to achieve the goals and objectives of the Discussion Draft. This project also includes all of the S&M requirements for sites included in the RA program. The ETTP watershed is one of five watersheds identified on the ORR to which the CERCLA process will be applied. The ORR is located in a water-rich environment with numerous surrounding water bodies. Each of the main plant areas on the ORR drains into one of the tributaries of the Clinch River/Watts Bar Reservoir system. Because of this, water is the dominant media for contaminant transport on the reservation. Therefore, the watershed approach for characterization, implementation of remediation phases, and subsequent monitoring provides a context in which to prioritize work and evaluate the overall effectiveness and relative contribution of individual RAs. In the DOE EM Discussion Draft the watershed RODs have been identified as significant milestones to the success of the plan. All five watershed RODs are to be approved by FY 2000. Because the watershed RODs encompass most of the priority contaminated sites across the ORR, the RAs defined in the RODs will provide the road maps for environmental restoration work on the reservation for years to come. The ETTP Watershed RA project has additional importance because of the efforts under way to privatize ETTP. The ETTP RA project will result in all sites being remediated so that work exposures are limited or controlled to the extent practical.

The ETTP RA Project consists of 21 subprojects that will address all of the primary sources of contamination and risk at ETTP. Because the primary contaminant transport mechanism in the Oak Ridge region is water, most of these projects include treatment of groundwater and/or surface water. Innovative technologies will be applied as appropriate to support the RA efforts. These subprojects will collectively address 58 release sites. The subprojects are:

- K-1413 Soils and Groundwater (WBS 4.1.01.05). Excavate contaminated soil. Collect contaminated groundwater with a french drain and treat it at the ETTP industrial wastewater treatment facility, the CNF. Treat residual soil contamination with a soil vapor extraction system. (165)
- K-1070-C/D G-pit and Contaminated Pad (WBS 4.1.01.48). In-situ vitrify contents of a disposal pit. Cover a radiologically contaminated concrete pad. (163)
- ETTP Site Wide ROD (WBS 4.1.01.41). Based on historical data and limited new data, prepare the RI report, FS, Proposed Plan, and ROD for ETTP. (10)
- K-1070-C/D and Mitchell Branch Plumes (WBS 4.1.01.41). Collect contaminated groundwater with a french drain and treat it at the ETTP industrial wastewater treatment facility, the CNF. Treat residual soil contamination with a soil vapor extraction system. (162)
- K-1401 Acid Line (WBS 4.1.01.50). Excavate contaminated soil. Collect contaminated groundwater from the sump in the building basement and treat it at the ETTP industrial wastewater treatment facility, the CNF. Treat residual soil contamination with a soil vapor extraction system. (164)
- K-1420 Contaminated Groundwater (WBS 4.1.01.43). Collect contaminated groundwater from the sump in the building basement and treat it at the ETTP industrial wastewater treatment facility, the CNF. Treat residual soil contamination with a soil vapor extraction system. (166)
- K-1400 French Drain Plume. Collect contaminated groundwater with a french drain and treat it at the ETTP industrial wastewater treatment facility, the CNF. (198)
- ETTP Site Wide Soil Remediation (WBS 4.1.01.05). Excavate contaminated soil. (109)
- K-1410 Old Neutralization Pit and K-1131 Neutralization Pile (WBS 4.1.02.42). Excavate contaminated soil. Cover the residual contamination, if any, with soil or an engineered cover, as appropriate. (230)
- K-27/29 Groundwater Source Control. Collect contaminated groundwater from the sump in the building basement and treat it at the ETTP industrial wastewater treatment facility, the CNF. Treat residual soil contamination with a soil vapor extraction system. (234)
- K-1070-A Contaminated Burial Ground (WBS 4.1.03.42). Collect contaminated groundwater with a french drain upgradient of the buried waste and a collection system downgradient of it. The buried waste is capped to keep rainfall away from the wastes. (161)
- K-901A Holding Pond (WBS 4.1.03.42). Access controls are placed around the pond to prevent fishing. (70)

- K-1007 P1 Pond (WBS 4.1.03.42). Access controls are placed around the pond to prevent fishing. (178)
- K-1417/1419 RCRA Closure (WBS 4.1.04.43). Remove, demolish, and decontaminate asphalt pads, sheds, concrete foundations, equipment, and structures. Also, remove underground piping, containerize wastes and store it. (183)
- Scrap Metal (WBS 4.1.01.55). Develop a program to manage scrap metal at the five DOE-ORO Sites; maximize the overall value of the scrap metal; manage the inventory in full compliance with all applicable regulations. (196)
- ETTP RA S&M (WBS 4.1.06.02). Periodic inspections, correction of deficiencies, and activities to limit liability and reduce the numbers of inspections. Also, special projects to stabilize radioactive wastes remaining from plant operations are done to reduce the hazard classification, S&M requirements, and contain contamination. (120)
- ETTP Long Term S&M (WBS 4.4.01.02). Maintain and operate systems that are constructed to reduce or eliminate environmental contamination. Also, monitor effectiveness of the systems by collecting data that indicates system performance. (119)
- Compliant Storage (WBS 4.1.04.41). Properly emptying drums of low-level sludges, disposing of the pallets on which the drums had been stored, and properly disposing of the empty drums. Disposing of pallets was completed in 1995. Emptying drums was completed in 1996, and the disposing of empty drums is anticipated to be completed in 1997. The pallets were incinerated and the empty drums were smelted at Scientific Ecology Group facilities. Sludges removed from the drums are stored at ETTP. (197)
- Unstabilized Pond Waste Treatment, Storage, and Disposal (WBS 4.1.04.42). Loading 350 gallon containers on flatbed trailers and transporting them to Envirocare of Utah for treatment and disposal. (32)
- Stabilized Pond Waste Disposal (WBS 4.1.04.45). Loading 17,300 drums onto railroad boxcars and transporting them to Envirocare of Utah for disposal. (170)
- Legacy Container Disposition Initiative (WBS 4.1.01.2). Sort, segregate, and dispose of containers of waste. (274)

OR-44302 ETTP PROCESS EQUIPMENT D&D

As it exists, the gaseous diffusion process equipment at ETTP will require long-term, extensive and costly S&M as long as it remains in place, poses progressively increasing risk of release of nuclear and hazardous materials to the environment; could result in nuclear criticality under certain conditions; and is an attractive target for theft of fissionable material remaining in the process. Alternatively, timely D&D as proposed in the project will recover metal values to offset project cost, reduce long-term risks, and avoid cumulative S&M costs expected to total \$300M over the next ten years.

The gaseous diffusion process equipment at ETTP is no longer needed for enriching uranium for either civilian or defense purposes and has been in cold shutdown for periods of 10 to 30 years.

Stakeholders are concerned about the risks posed by progressively deteriorating buildings which house the equipment, costly maintenance (such as new roofs) which are required in the short term to adequately contain environmental and health risks; that DOE will walk away and leave an abandoned facility; that valuable materials will not be recovered; and that jobs generated by this project will not materialize.

This project will abate risks and stakeholder concerns through several major accomplishments: (a) dismantle the gaseous diffusion process equipment contained in process buildings K-25, K-27, K-29, K-31, and K-33 at ETTP; (b) process the resultant scrap metal in a way which cost-effectively balances recovery of metal values against generation of wastes requiring disposal; (c) disposition primary and secondary materials in a manner acceptable both on site and at remote locations; (d) protect workers, the public, and the environment during all phases of operations; (e) satisfy the federal, state, and local requirements before, during, and after operations; (f) result in buildings which represents an environmentally stable state conducive to long-term, low-cost S&M; (g) provide opportunities for private sector participation to a diverse set of players having available expertise in this type of work; and (h) provides major reduction in EM mortgage.

This project may be followed by other projects as needed to achieve final disposition of any remaining structures not slated for reuse and any remediation of soil and groundwater underneath the structures as necessary to meet targeted site closure objectives.

The five process buildings at ETTP are the largest facility of its kind in the world. Approximately 120 acres of footprint are under roof and contain over 5000 stages of gaseous diffusion process equipment. Each stage consists of a compressor and electric motor, the “converter” which contains the separation membrane (barrier material) and process gas cooler, and the associated process piping and control valves. In all buildings, the stages are grouped into “cells,” containing either eight or ten stages, with the cells being enclosed in cell enclosures (except for the K-29 building). In addition, there is a large quantity of process piping and relating valving which connects the cells, and ties the cells together into “units” within the buildings. Interbuilding piping ties the units together. Also included in the scope are the large quantities of support equipment within the buildings, such as supply and exhaust fans and duct work, electrical supply and distribution equipment, controls and instrumentation, lubrication oil supply and recirculation systems, the process coolant and recirculating water systems, surge tanks to retain UF₆, and countless other specific systems that are addressed during this project.

The stage equipment (such as converters) varies in mass from a few hundred pounds up to 38 tons. The total metal contained in the process equipment has been estimated at 250 to 300K tons, of which about 7000 tons is nickel. Most of this metal is available for recovery at the option of DOE and the private sector to meet demands for either feedstock or products manufactured from the recovered metal. Uranium in the form of oxyfluorides is thought to comprise the majority of the contamination (greater than 99 percent is inside the equipment). In addition, small amounts of other radionuclides of concern, such as technetium 99, are present. The difficulty of accessing the equipment varies greatly from the older buildings (K-25, K-27) to the larger, more open arrangements in K-29, K-31, and K-33.

Major decontamination of the remaining building structure is not planned for this project, but rather removal of readily-accessible radionuclides from floors, and other areas, to make it acceptable to future activities specifically directed at building disposition. The subprojects are:

- Process Equipment D&D (K-25 and K-27) (WBS 4.2.01.65). Recycle metals in the ETTP process equipment by converting process equipment and other radiologically contaminated metal into either metal for free release or use in products that can use limited radioactive contamination, i.e., containers, batteries, etc. (86)
- Process Equipment D&D (K-29, K-31, and K-33) (WBS 4.2.01.64). Recycle metals in the ETTP process equipment by converting process equipment and other radiologically contaminated metal into either metal for free release or use in products that can use limited radioactive contamination, i.e., containers, batteries, etc. (87)

OR-44303 ETTP D&D

The purpose of the ETTP D&D Project is to address environmental hazards that have been identified within the ETTP watershed and to complete the CERCLA activities required for all of these sites. The boundaries of the ETTP watershed are Black Oak Ridge on the north, West Pine Ridge on the south, Clinch River to the west. The eastern boundary is comprised of Blair Road, Highway 58, and Highway 95. ETTP is located in Roane County in Eastern Tennessee, near the town of Oak Ridge. ETTP was the first site at which uranium was enriched for use in an atomic bomb. After World War II, the uranium enrichment operations were continued to supply uranium for nuclear reactors. All enrichment operation stopped in 1985. ETTP has been part of the Oak Ridge Environmental Restoration program since its inception in 1990. Several projects have been scoped and implemented during this time period in order to reduce the hazards remaining from uranium enrichment operations. This PBS describes the scope of the subprojects that will address the remaining contamination to achieve the goals and objectives of the Discussion Draft.

This project also includes all of the S&M requirements for sites included in the RA program. The ETTP watershed is one of five watersheds identified on the ORR to which the CERCLA process will be applied. The ORR is located in a water-rich environment with numerous surrounding water bodies. Each of the main plant areas on the ORR drains into one of the tributaries of the Clinch River/Watts Bar Reservoir system. Because of this, water is the dominant media for contaminant transport on the reservation. Therefore, the watershed approach for characterization, implementation of remediation phases, and subsequent monitoring provides a context in which to prioritize work and evaluate the overall effectiveness and relative contribution of individual RAs. In the DOE EM Discussion Draft the watershed RODs have been identified as significant milestones to the success of the plan. All five watershed RODs are to be approved by FY 2000. Because the watershed RODs encompass most of the priority contaminated sites across the ORR, the RAs defined in the RODs will provide the road maps for environmental restoration work on the reservation for years to come. The ETTP D&D project has additional importance because of the efforts under way to reindustrialize ETTP. Reindustrialization is the preferred method of accomplishment for D&D. The ETTP D&D project will result in all sites being decontaminated or demolished so that work exposures are eliminated or controlled to the extent practical.

The scope included in the ETTP D&D Project includes several subprojects that will address all of the primary sources of contamination and risk at ETTP. These subprojects will collectively address all release sites currently in the D&D program. The subprojects that have been developed to date include:

- Deposit Removal Stabilization Program (WBS 4.2.01.46). Remove, safely package, and relocate uranium deposited in some of the piping and equipment in the K-25 and K-29 Process Buildings. (111)
- ETTP Decommissioning Surveillance & Maintenance (WBS 4.2.01.02) Periodic inspections, correction of deficiencies, and activities to limit liability and reduce the numbers of inspections. Also, special projects to stabilize radioactive wastes remaining from plant operations are done to reduce the hazard classification, S&M requirements, and contain contamination. (133)
- Powerhouse Demolition (WBS 4.2.01.56). 16 facilities in the Powerhouse area were demolished, Resulting wastes were disposed of, and surplus and recyclable materials managed. (260)
- ETTP Cooling Towers Demolition (WBS 4.2.01.57). Demolish six out-of-service cooling towers and associated auxiliary facilities and remove materials for recycle or disposal. (268)
- K-31 Reroofing (WBS 4.2.01.58). Repair and replace various sections of the 17-acre roof of the K-31 Process Building. (185)
- Small Scale Metal Retrieval and Recycle Program (WBS 4.2.01.59). Demonstrate the economic and technical feasibility of converting contaminated and classified metal from the ETTP Gaseous Diffusion facilities into storage containers. (88)
- KAFAD Group I Building Demolition (WBS 4.2.01.60). Demolish five contaminated facilities. (182)
- KAFAD Group II Building Demolition (WBS 4.2.01.61). Demolish twenty-two uncontaminated facilities. (257)
- KAFAD Group III Building Demolition (WBS 4.2.01.62). Demolish twenty-three uncontaminated facilities. (235)
- KAFAD Group IV Building Demolition (WBS 4.2.01.63). Demolish thirteen uncontaminated facilities. (255)
- K-1420 Demolition (WBS 4.2.01.66) Demolish the contaminated K-1420 Building and 7 of its auxiliary facilities. (232)
- K-25, K-27, and K-29 Demolition (WBS 4.2.01.67). Demolish the K-25, K-27, and K-29 Process facilities. (229)
- Centrifuge Facilities Decontamination (WBS 4.2.01.80). Decommission and decontaminate the 19 Centrifuge facilities for reuse by a new industrial user. Valuable metals and recyclable materials are recycled. (256)

OR-44101 ETPP LANDLORD (134)

The programmatic objective of the ETPP Landlord Project is to provide effective, sustained, long-term, general-purpose facilities support to the EM Program and other programs at ETPP. The role of the program is to maintain the integrity of general use facilities and infrastructure to provide a base of operation for the Environmental Management and Enrichment Facilities Program and prepare the site for defederalization by FY 2006. This project will acquire, replace, upgrade, or maintain general purpose buildings, systems, and equipment; and provide the necessary upgrades to accomplish the objective of resolving the necessary environmental hazards to allow facilities reuse and reindustrialization of ETPP.

The scope of the ETPP Landlord Project includes: (a) implementation of construction activities, renovations, and system upgrades; (b) development of plans which include engineering studies, evaluations, and assessments; (c) procurement and installation of equipment; (d) lease of assets to reduce the Federally funded activities; and (e) reducing the number of federally occupied facilities.

OR-45301 PADUCAH REMEDIAL ACTION

During past operations of Paducah Gaseous Diffusion Plant (PGDP), RCRA hazardous wastes, hazardous constituents, and hazardous substances were released into the environment. The source areas of these releases are often referred to as solid waste management units (SWMUs) and Areas of Concern. In general, SWMUs and Areas of Concern are typically areas such as burial grounds, spill sites, landfarms, surface impoundments, and underground storage tanks. The releases from some source areas have migrated into the surrounding soils, and in some cases, to the underlying groundwater and adjacent surface water/sediments. In July 1988, groundwater samples collected from residential wells north of PGDP led to the discovery of trichloroethene and technetium-99 (Tc-99) contamination. Accordingly, this element of the project will provide for the investigation and remediation of these releases.

Extensive support facilities are required to maintain the diffusion process leased to United States Enrichment Corporation (USEC). These include a steam plant, four electrical switchyards, four sets of cooling towers, a chemical cleaning and decontamination facility, water and wastewater treatment plants, maintenance and laboratory facilities, and one active landfill. Several inactive facilities are also located on the plant site. Once a facility is no longer needed to support the enrichment process, it will typically be transitioned from USEC to DOE. To address these facilities, the D&D program prepares selected facilities for reuse, or provides for disposition of contamination facilities that have no further contribution to the DOE mission. This element of the project has two major phases: (1) project preparation consisting of S&M to preserve the integrity of the structure and containment of residual radioactive and hazardous wastes, small scope facility stabilization projects to reduce risk or cost, and project planning/design; and (2) the project phase to effect facility cleanup and reuse or dismantlement.

Long-term S&M, which is also an element of this project, is an ongoing operation that monitors and/or implements actions to ensure environmental restoration facilities and RA (RA) facilities and sites remain in compliance with established criteria that protect human health, the environment, and

assets. The scope includes operation (e.g., treatment facilities) and S&M activities at RA sites and facilities both prior to and following regulatory corrective actions to remediate the site.

RCRA requirements for PGDP are contained in two separate but related permits. These include a Hazardous Waste Management Permit, issued and administered by the Commonwealth of Kentucky, and the Hazardous Solid Waste Amendment Permit, issued and administered by the U.S. Environmental Protection Agency (EPA). These permits were issued on July 16, 1991, and constitute the RCRA Permits for PGDP. These permits and subsequent modifications contain a schedule of compliance for investigation and corrective action for SWMUs. Additionally, PGDP was placed on the National Priorities List under the CERCLA in May of 1994. As a result, a FFA is being negotiated between DOE, EPA, and the Commonwealth of Kentucky to provide a framework for coordinating the environmental cleanup programs of both RCRA and CERCLA.

To date, 208 SWMUs/Areas of Contamination have been identified at PGDP. These SWMUs and Areas of Contamination have been grouped into 30 waste area groups and prioritized for the purpose of undergoing the remedial process (e.g., Preliminary Assessment/Site Inspection, RI/FS, RD/RA). Additionally, the site contains two large groundwater plumes extending off-site which are often referred to as the Northeast and Northwest Plumes. The Northwest Plume contains trichloroethylene and technetium-99 and extends about three miles north toward the Ohio River. The Northeast Plume contains primarily trichloroethylene, and extends a similar distance from the northeast portion of the plant. Interim actions for these plumes have been implemented to initiate control of the high concentration areas. Final actions for these areas are addressed under Waste Area Group 26.

PGDP D&D currently includes two major facilities: C-340 Metal Reduction Plant (75,000 square feet) and C-410 Feed Plant (200,000 square feet). At this time, both facilities are under S&M, with several facility stabilization projects under way at C-410, and no stabilization projects under way at C-340. The scope of this project does not include active D&D of these facilities. However, when the remaining portion of the operating plant shuts down, additional scope with additional funding may need to be included in this project.

The long-term S&M element of this project involves the day-to-day surveillance, maintenance, and operation of all Environmental Restoration facilities and sites. There are six major scope elements of this operation. These include: (1) operation of the northwest and northeast groundwater plume pump and treatment facilities as per regulatory agreements and operation and maintenance plans; (2) surveillance of all PGDP Environmental Restoration facilities (30 separate structures), and RA sites (SWMUs) to determine status and ensure compliance with program requirements; (3) maintenance of all facilities and sites (as listed above and also including groundwater monitoring wells) to retard degradation and correct deficiencies; (4) S&M operations at postremediation sites to comply with regulations and regulatory agreements; (5) facility stabilization actions that improve conditions and/or lower costs or risks; and (6) facility and program management to ensure efficient, safe operation.

The subprojects are:

Waste Area Grouping (WAG) 2 (262)/(WBS 7.1.13.10)
WAG 3 (247)/(WBS 7.1.13.06)

WAG 5 (264)/(WBS 7.1.03.06)
 WAG 6 (39)/(WBS 7.1.09.06)
 WAG 7 & 1 (71)/(WBS 7.1.04.06)
 WAG 8 (265)/(WBS 7.1.06.06)
 WAG 9 (266)/(WBS 7.1.06.07)
 WAG 11 (251)/(WBS 7.1.03.07)
 WAG 12 (214)/(WBS 7.1.07.06)
 WAG 13 (205)/(WBS 7.1.05.06)
 WAG 14 (248)/(WBS 7.1.13.11)
 WAG 15 (254)/(WBS 7.1.07.07)
 WAG 16 (240)/(WBS 7.1.08.06)
 WAG 17 (181)/(WBS 7.1.09.07)
 WAG 18 (44)/(WBS 7.1.10.06)
 WAG 19 (241)/(WBS 7.1.02.06)
 WAG 20 (263)/(WBS 7.1.02.07)
 WAG 21 (221)/(WBS 7.1.02.08)
 WAG 22 (SWMUs 2 & 3/Burial Grounds) (138)/(WBS 7.1.02.09)
 WAG 22 (SWMUs 7 & 30/Burial Grounds) (139)/(WBS 7.1.02.10)
 WAG 23 (PCB Sites) (159)/(WBS 7.1.02.11)
 WAG 24 (Contaminated Scrap Areas) (193)/(WBS 7.1.02.12)
 WAG 25 (Little Bayou Creek/Ditches) (45)/(WBS 7.1.02.31)
 WAG 26 (Groundwater Plumes) (73)/(WBS 7.1.02.33)
 WAG 27 (Trichloroethene Sources) (157)/(WBS 7.1.02.27)
 WAG 28 (Trichloroethene Sources) (167)/(WBS 7.1.02.28)
 WAG 29 (224)/(WBS 7.1.02.29)
 WAG 30 (278)/(WBS 7.1.02.30)
 Paducah Background Soil Study (269)/(WBS 7.1.02.22)
 C-400-C Nickel Stripper (227)
 LASAGNA (SWMU 91) (203)/(WBS 7.1.11.07)
 Paducah Northwest Plume Interim Remedial Action (116)/(WBS 7.1.02.13)
 Paducah Northeast Plume Interim Remedial Action (49)/(WBS 7.1.02.16)
 Paducah Groundwater Operable Unit (110)/(WBS 7.1.02.18)
 Paducah Well Sampling (184)/(WBS 7.1.11.11)
 Paducah Long-Term Surveillance & Maintenance (130)/(WBS 7.4.01.01)
 Paducah RA Surveillance & Maintenance (131)/(WBS 7.1.14.06)

OR-45302 PADUCAH WASTE MANAGEMENT

PGDP is an active uranium enrichment facility constructed in the early 1950s to provide enriched uranium to commercial reactors and defense programs. Since beginning operations, PGDP has generated, stored, and disposed of hazardous, nonhazardous, radioactive, PCB, and mixed wastes. Effective July 1, 1993, in compliance with the Energy Policy Act of 1992, DOE leased the plant production facilities to USEC. As detailed in the lease agreement, USEC is responsible for wastes generated as the result of operations after July 1, 1993, except for certain legacy and PCB wastes. DOE is responsible for these legacy and PCB wastes as well as all wastes generated before the lease

and for all wastes currently being generated by the Environmental Management and Enrichment Facilities Program at Paducah. The purpose of the Paducah Waste Management project is to effectively manage (store, treat, and dispose) the PGDP wastes designated the responsibility of DOE in a safe, economical, and compliant manner.

This project also contains scope providing Program Management support for Waste Management RA, D&D, and S&M activities. This function includes strategic planning to support the development and implementation of the Discussion Draft; Site Treatment Plan; and other programmatic plans required to comply with regulatory agreements and DOE requirements. Program Management also supports the budget and prioritization process, DOE and regulatory reporting, Agreement in Principle, Sample Management, peer review of project plans and reports; regulatory negotiations; and other programmatic related activities.

Environmental regulatory requirements that are applicable to PDGP's Waste Management Program are RCRA Part B Hazardous Waste Management Permit; TSCA regulations for the management of PCB waste; DOE Order 5820.2A Radioactive Waste Management; CERCLA; TCLP FFCA dated March 26, 1992; Land Disposal Restrictions of 1984 FFCA dated June 30, 1992; TSCA FFCA dated February 20, 1992; and the FFCA Unilateral Order/Site Treatment Plan dated October 3, 1995.

The scope of the project consists of the treatment, storage, and/or disposal of 56,420 cubic feet of mixed (RCRA/LLW) waste; 109,144 cubic feet of TSCA and TSCA/LLW; 212,657 cubic feet of LLW; over 60,500 tons of scrap metal presently stored at PGDP; and large unquantified inventory of DOE material stored in currently deleased DOE Material Storage Areas. The program is subdivided into three work breakdown structures elements: Treatment, Storage, and Disposal. Major components of the Treatment Work Breakdown Structure are the Vortec Vittrification Demonstration project, TCLP FFCA, Land Disposal Restrictions of 1984 FFCA/FFC Act, on-site wastewater treatment and K-25 incinerator shipments. The Storage Work Breakdown Structure includes Storage Operation (Base Operations), RCRA closure of certain Waste Management Facilities, and upgrading the Waste Information Tracking System. The Disposal Work Breakdown Structure includes on-site landfill operation; RCRA, TSCA, and LLW off-site disposal; and scrap metal recycling. Currently, the storage facilities at PGDP consist of 153,00 square feet of RCRA storage; 105,000 square feet of TSCA storage; and 241,00 square feet of LLW storage. Disposal activities consist of operation of a new 60-acre solid waste landfill (approximately 3,000 tons of waste per year) and preparation (sampling, analysis, characterization, and packaging) and shipment of certain RCRA and low-level radioactive wastes to off-site disposal facilities. Treatment activities include treatment of approximately 60,000 lbs/year of wastewater, and shipments of RCRA/TSCA liquid wastes to the TSCA Incinerator at Oak Ridge and characterization, but consists primarily of preparation of legacy wastes for treatment options and disposal. The current plans are to treat and dispose all DOE legacy waste except for TRU waste by the end of FY 2006. Scrap metal located on WAG 24 will be shipped to Oak Ridge for metal recycling, which will allow for the investigation and remediation of WAG 24 as scheduled in the Paducah FFA.

The subprojects are:

Paducah Waste Management Treatment (30)/(WBS 7.6.01)

Paducah Waste Management Storage (104)/(WBS 7.6.02)

Paducah Waste Management Disposal (56)/(WBS 7.6.03.00)

OR-46301 PORTSMOUTH REMEDIAL ACTION

During the cold war, PORTS was constructed to enrich uranium in support of both government and private programs. The plant is currently operational under a lease agreement with USEC which produces Low Enriched Uranium for commercial applications. During DOE's operation of the plant, there were releases of radiological and hazardous constituents from the process into the workplace and the environment. This project will complete the DOE portion of the Environmental Restoration program for the site and continue with the long-term S&M program for the site. Additional environmental restoration will likely be required following cessation of plant operations and D&D of the plant. However, this cleanup is beyond the scope of the current DOE plan.

The project has the following objectives for the site: (a) complete facility investigations, environmental assessments, interim actions, and corrective measures studies leading to a decision document for all release sites; (b) complete corrective measures implementations, solid waste closures, and above ground and below ground tank remediations, all in compliance with regulatory direction; (c) operate and maintain the ongoing groundwater protection program at the site, including the operation of the groundwater treatment facilities and the site-wide groundwater monitoring program; and (d) conduct long-term S&M of the RA units and D&D facilities in accordance with all regulatory and DOE requirements.

The project will complete assessment and/or cleanup of 156 units which have been identified during the course of the RCRA Corrective Action Process for the site. The units have been organized into area groupings and the major subprojects are:

- Quadrant I Assessments (112)/(WBS 8.1.01.51)
- Quadrant II Assessments (113)/(WBS 8.1.02.50)
- Quadrant III Assessments (114)/(WBS 8.1.03.50)
- Quadrant IV Assessments (115)/(WBS 8.1.04.50)
- Quadrant II Balance (219)/(WBS 8.1.02.58)
- Quadrant III Balance (222)/(WBS 8.1.03.56)
- Quadrant IV Balance (223)/(WBS 8.1.04.56)
- X-615 Sewer (276)
- Site-wide Surface Drainage (117)/(WBS 8.1.01.52)
- X-749/X-120 Area (72)/(WBS 8.1.01.54)

- 5-Unit Area (137)/(WBS 8.1.01.56)
- Peter Kiewit Landfill (207)/(WBS 8.1.01.58)
- X-701B Area (69)/(WBS 8.1.02.52)
- X-705 A/B Area (216)/(WBS 8.1.02.54)
- 7-Unit Area (118)/(WBS 8.1.02.56)
- Supplemental Environmental Project (270)/(WBS 8.1.03.53)
- X-740 Area (158)/(WBS 8.1.03.54)
- X-611A Lime Sludge Lagoons (200)/(WBS 8.1.04.52)
- PORTS Site-Wide D&D S&M (129)/(WBS 8.2.01.51)
- PORTS Long-Term S&M (124)/(WBS 8.4.01.01)
- PORTS Groundwater Protection Program (46)

OR-46302 PORTSMOUTH WASTE MANAGEMENT

During the cold war, PORTS was constructed to enrich uranium in support of both government and private programs. The plant is currently operational under a lease agreement with USEC which produces Low Enriched Uranium for commercial applications. As a result of environmental releases from past production activities, environmental restoration projects conducted by RA are generating waste streams to be received for storage by Waste Management. In addition, Waste Management will be managing legacy waste streams within the scope of the current Site Treatment Plan.

The Waste Management project has the following objectives for the site: (a) perform treatment, maintain waste storage and expedite all waste streams to final disposition in full compliance with all DOE Orders, Lockheed Martin Energy Systems, Inc., policies and procedures, and federal and state regulations and permits; and within all budget constraints; (b) reduce the Waste Management overhead burden in direct proportion to the waste streams shipped off-site for disposition; and (c) document all past, present, and future waste streams generated by DOE-directed activities that have been stored or are being stored for disposition in the RCRA-permitted storage areas.

The Waste Management project is comprised of three functions: (1) waste storage, (2) treatment, and (3) disposal.

1. The Waste Storage function involves the following elements: Facility Operations, Waste Tracking, Facility Maintenance and Project Integration/Generator Interface. Each Waste Storage element has been established in response to regulatory requirements for handling the various waste streams generated at PORTS. RCRA Operating Records will be the only element remaining to be managed after all waste administered by DOE has been appropriately dispositioned.

2. On-site treatment is anticipated for wastewater waste streams only. All other waste streams slated for treatment before final disposition are treated as specified by the appropriate regulatory authorities at an appropriate off-site treatment facility.
3. Each waste stream stored in the permitted waste storage areas for DOE-managed waste streams will be disposed by the most cost effective, regulatory compliant method. All waste streams generated at PORTS under DOE direction are tracked from the point of generation to final disposition.

The subprojects are:

PORTS Waste Management Treatment (31)/(WBS 8.6.01.00)

PORTS Waste Management Storage (105)/(WBS 8.6.02.00)

PORTS Waste Management Disposal (68)/(WBS 8.6.03.00)

OR-47201 WELDON SPRING DISPOSAL FACILITY (41)

The Weldon Spring Site is located in St. Charles County, Missouri, about 48 kilometers (30 miles) west of St. Louis. The site consists of two geographically distinct areas: the 88-ha (217-acre) chemical plant area, which is 3.2 kilometers (2 miles) southwest of the junction of Missouri (state) Route 94 and U.S. Route 40/61, and a 3.6-ha (9-acre) limestone quarry, which is about 6.4 kilometers (4 miles) south-southwest of the chemical plant area. The site was initially used by the Army during the 1920s to produce the explosives TNT and DNT. After extensive demolition, decontamination, and regrading, the chemical plant was built by the U.S. Atomic Energy Commission to process uranium and thorium ore concentrates during the 1950s and 1960s.

Radioactively and chemically contaminated waste was disposed of at the site during the latter period, and waste was disposed of in the quarry by both the Army and the U.S. Atomic Energy Commission from the 1940s through the 1960s.

Because of the U.S. Department of Army's involvement with the history of the site, a Memorandum of Understanding between the U.S. Department of the Army and DOE was signed in February 1985 transferring ownership to DOE and establishing a cost-sharing arrangement for the Weldon Spring Site Remedial Action Project (WSSRAP) between DOE and the U.S. Department of the Army. Since then, DOE ORO has administered the Weldon Spring Site as Major Project No. 182, Weldon Spring Site RA Project. In 1986, EPA and DOE signed an FFA, which was amended in 1992.

The purpose of the WSSRAP Disposal Facility project is the environmental restoration of the chemical plant and quarry areas so as to place them in a radiologically/chemically safe condition in accordance with DOE guidelines so as to eliminate potential hazards to the public and the environment.

The scope of the WSSRAP Disposal Facility project includes: (a) preparation, environmental agency review and approval, and public review and approval of environmental documentation containing the data collected, its analysis, and rationale for the remediation solution selected;

(b) construction, operation, decommissioning and dismantling of quarry and chemical plant site water treatment plants to treat and release contaminated surface water; (c) excavation and temporary storage of contaminated soil, rubble, and equipment from the quarry; (d) decontamination, dismantling, and temporary storage of the chemical plant site's 44 buildings, foundations, and associated structures; (e) excavation and temporary storage of contaminated soil and rubble from several identified vicinity properties near the WSSRAP chemical plant site; (f) construction of and placement of waste in an engineering disposal facility designed to isolate the contaminated wastes from the public and the environment for the foreseeable future; (g) construction, operation, decommissioning and dismantling of all structures and facilities required to support the excavations, temporary storage, disposal facility construction waste placement and disposal facility closure during the life of WSSRAP; and (h) restoration of all remediated sites and release of as much of the project area as possible.

OR-47202 WELDON SPRING WASTE TREATMENT (1)

The Weldon Spring Site is located in St. Charles County, Missouri, about 48 kilometers (30 miles) west of St. Louis. The site consists of two geographically distinct areas: the 88-ha (217-acre) chemical plant area, which is 3.2 kilometers (2 miles) southwest of the junction of Missouri (state) Route 94 and U.S. Route 40/61, and a 3.6-ha (9-acre) limestone quarry, which is about 6.4 kilometers (4 miles) south-southwest of the chemical plant area. The site was initially used by the Army during the 1920s to produce the explosives TNT and DNT. After extensive demolition, decontamination, and regrading, the chemical plant was built by the U.S. Atomic Energy Commission to process uranium and thorium ore concentrates during the 1950s and 1960s.

Radioactively and chemically contaminated waste was disposed of at the site during the latter period, and waste was disposed of in the quarry by both the Army and the U.S. Atomic Energy Commission from the 1940s through the 1960s.

Because of the U.S. Department of the Army's involvement with the history of the site, a Memorandum of Understanding between the U.S. Department of the Army and DOE was signed in February 1985 transferring ownership to DOE and establishing a cost-sharing arrangement for the WSSRAP between DOE and the U.S. Department of the Army. Since then, DOE ORO has administered the Weldon Spring Site as Major Project No. 182, Weldon Spring Site RA Project. In 1986, the EPA and DOE signed an FFA, which was amended in 1992.

The purpose of the WSSRAP Waste Treatment project is the environmental restoration of the four raffinate pits at the chemical plant site so as to place them in a radiologically/chemically safe condition in accordance with DOE guidelines so as to eliminate potential hazards to the public and the environment.

The scope of this project includes characterization and environmental documentation required to support the raffinate pits remediation, dewatering of the raffinate pits, consolidation and removal of raffinate pit debris, consolidation and dredging of raffinate pits sludges, design/construction and operation of both pilot and full-scale Chemical Stabilization and Solidification plants, treatment of the

raffinate pits wastes in the full-scale plant prior to placement in the disposal facility, and restoration of the raffinate pits sites.

OR-47203 WELDON SPRING LONG-TERM SURVEILLANCE AND MAINTENANCE (121)

The purpose of this project is to maintain and evaluate the performance of the WSSRAP disposal facility after its closure in 2004. Monitoring will ensure the continuing protection of the public and the environment.

This is an operations project which will provide the long-term maintenance and surveillance at the WSSRAP disposal facility after its completion and closure. Grounds and facility maintenance and security as well as required long-term environmental monitoring are included. This project is scheduled to begin in FY 2005 under the current Discussion Draft assumptions.

OR-48101 OFF-SITE REMEDIAL ACTION

The purpose of the ORR RA grouping of projects is to address DOE-associated environmental hazards that have been identified in locations downgradient from an/or outside of DOE property and take those identified sites through the CERCLA process. This grouping of projects also includes two reservation-wide initiatives (Footprint Reduction/Site Evaluations and the ORR Integrated Water Quality Program) which support and, hopefully, expedite completion of all regulatory-required remedial work associated with the ORR, both on- and off-site. The off-site projects/sites with identified environmental hazards (eight projects/sites) are discussed first, followed by a discussion of the Footprint Reduction/Site Evaluation project and the ORR Integrated Waster Quality Program.

The ORR is located in a water-rich environment with numerous surrounding water bodies, some of which have been enlarged by man-made activities (e.g., dams built by the Tennessee Valley Authority). Each of the main plant areas on the ORR (ORNL, ETTP, and the Y-12 Plant) drains into one of the tributaries of the Clinch River/Watts Bar Reservoir system. These tributaries and downgradient water bodies have become contaminated over the last 50 years of plant operations conducted on the ORR. These operations included research, development, and process facilities in support of the Manhattan Project. The area surrounding the ORR and these downgradient water bodies is predominately rural, used largely for residences, small farms, and pasture land. Fishing, boating, water skiing, and swimming are favorite recreational activities in the area. Because of concern for public health and safety from exposure to contaminants and because of concern for property values, these contaminated water bodies (Lower East Fork Poplar Creek, Clinch River/Poplar Creek, Watts Bar Reservoir) have each been the focus of a CERCLA RI and priority RAs, where appropriate. Because of improved waste management activities on the ORR, improved spill response activities on the ORR and RAs to remove or mitigate contaminant sources on the ORR, the off-site contamination problems are essentially “legacy” problems and are mainly associated with contaminated layers of sediments in creek and lake bottoms and deposited in the floodplain soils. Each of these projects (Lower East Fork Poplar Creek, Clinch River/Poplar Creek, Watts Bar) has been evaluated according to the CERCLA process and the National Contingency Plan nine criteria. A CERCLA ROD has been

approved by DOE, EPA-Region IV, and the TDEC for each of these projects and only Lower East Fork Poplar Creek has been identified as requiring rigorous RA at this time. In this project, excavation of mercury-contaminated floodplain soils above an action level of 400 ppm is required, and Phase 1 excavation has been completed. Additional information on remaining scope and the technical approach is discussed in Sections A.1.2 and A.1.3, respectively. For the Clinch River/Poplar Creek and Watts Bar projects, the CERCLA RODs adopted two existing controls to mitigate exposure to contaminants and required preparation and implementation of regulatory-approved monitoring plans. The existing controls adopted by the RODs are sediment dredging restrictions put in place by the Corps of Engineers and posting of fish consumption advisories put in place by the TDEC.

In the past, DOE and its predecessor agency, the Atomic Energy Commission, sold metal or equipment for recycle and reuse. Four projects have been identified to address privately-owned off-site areas where this surplus equipment or scrap metal has led to contamination that is now under the jurisdiction of TDEC (Atomic City Auto Parts, David Witherspoon 901, David Witherspoon 1630, Oak Ridge Tool & Engineering). The first three sites are listed on the Tennessee Superfund List and DOE has been identified as a Potentially Responsible Party under Agreed Consent Orders. DOE's involvement at the Oak Ridge Tool and Engineering site is also under a Consent Order from TDEC. Work at another site, the Western Sewage Digester, is a voluntary action entered into by DOE in support of the City of Oak Ridge. The purpose of these projects is to comply with state requirements by cooperating with the state and other Potential Responsible Parties and remain a leader in community support in the Oak Ridge and Knoxville communities. Scopes and technical approach for each of these projects are discussed in Sections A.1.2 and A.1.3, respectively.

Two ORR site-wide initiatives are included in this PBS grouping: the Footprint Reduction/Site Evaluations project and the ORR Integrated Water Quality Program. The total acreage of the ORR is approximately 35,000 acres. However, only a small percentage of this acreage has been disturbed by construction or waste management activities or adversely impacted by contaminant migration. Therefore, the purpose of the Footprint Reduction/Site Evaluation project is to use existing operational information, aerial photographs, remote-sensing surveys and field inspections to delist large areas of land from the National Priorities List site listing. Part of the Integrated Water Quality Monitoring Program was established in 1996 to develop a consistent approach to long-term watershed-scale surface water, groundwater, and biological monitoring across the ORR. The objective of the program is to provide information regarding the status and trends of ORR impacts upon surface water and ground water quality. Information from the program will be used to assist management decisions regarding the implementation of RA projects.

The subprojects are:

- Clinch River/Poplar Creek (WBS 3.1.02.41). Off-site contaminated waterway. CERCLA ROD has been prepared. Dredging restrictions and fish consumption advisories are maintained. Monitoring plan is underway. (179)
- Watts Bar (WBS 3.1.02.44). Off-site contaminated waterway. CERCLA ROD has been prepared. Dredging restrictions and fish consumption advisories are maintained. Monitoring plan is underway. (190)

- Atomic City Auto Parts (WBS 3.1.02.42). Off-site contaminated salvage business. Scrap material, soils, sediments and sheds are removed. (156)
- David Witherspoon, Inc. 901 Site (WBS 3.1.03.43). Off-site contaminated salvage business. Soils and creek sediments are removed. Building decontamination will occur. (153)
- Lower East Fork Poplar Creek (WBS 3.1.04.41). Off-site contaminated floodplain soils and waterway. CERCLA ROD has been approved. Phase 1 of contaminated soil and sediment excavation and backfill has been completed. Phase 2 is underway. Monitoring follows completion of RA. (40)
- Oak Ridge Tool and Engineering (WBS 3.1.03.46). Off-site contaminated machining business. Machinery decontamination occurs. (271)
- Western Sewage Digester (WBS 3.1.03.45). Off-site contaminated City of Oak Ridge sewage digester. Sludge is mechanically dewatered and filter cake is disposed of in Y-12 Landfill 5. (272)
- David Witherspoon, Inc. 1630 Site (WBS 3.1.03.47). Off-site contaminated salvage business. Contaminated equipment is removed. Landfill cap is repaired. (152)
- Footprint Reduction/Site Evaluations (WBS 2.3.04.11). Large areas of the ORR have never been used for production purposes or waste management and are proposed for delisting from the CERCLA National Priorities List site. In addition, numerous identified sites have relatively benign operational histories and insignificant or no associated contamination and are candidates for No Further Investigation or No Further Action. (83)
- ORR Integrated Water Quality Program (WBS 4.1.05.10). Water is the dominant media for contaminant transport on the ORR. The Integrated Water Quality Program conducts surface water, groundwater, spring, storm drain, sump, and biological monitoring based on the current conceptual understanding of contaminant transport pathways and mechanisms to support decisions regarding the implementation of RA projects. (151)

OR-48301 DIRECTED SUPPORT

Directed Support provides grant support to the states of Tennessee and Kentucky at the ORR and PGDP. This support is provided in grants through the Agreements in Principle at each site (ORR and PGDP), formation of the Site Specific Advisory Board at ORR and the FFA at ORR and PGDP.

The Agreement in Principle with DOE provides grant assistance to Tennessee and Kentucky for independent support of environmental programs at the ORR and PGDP.

Site Specific Advisory Board - Under CERCLA, federal facilities are required to provide public involvement in environmental restoration decision making activities. One of the methods implemented by DOE to satisfy this requirement is the development of a Site Specific Advisory Board.

FFA - It is the intent of these grants between the states of Kentucky and Tennessee with DOE to provide for the administrative support necessary to oversee the requirements for the interagency agreements under CERCLA.

Directed support (WBS 2.3.02.01) includes:

- Agreement in Principle between the DOE and State of Tennessee
- Agreement in Principle between DOE and State of Kentucky
- Site Specific Advisory Board for the ORR
- Site Specific Advisory Board for PGDP
- FFA at PGDP

OR-63201 NUCLEAR MATERIAL AND FACILITY STABILIZATION

The Nuclear Material and Facility Stabilization project includes surveillance, maintenance, and deactivation of 50 facilities at ORNL; removal, packaging, and shipment of fuel from two shutdown reactors (the Bulk Shielding Reactor and the Tower Shielding Reactor); safe management and storage, removal, packaging, and shipment of spent nuclear fuel from SWSA 5N on the ORR to the Savannah River Site or the Idaho National Engineering Laboratory in accordance with the DOE Programmatic Environmental Impact Statement for Spent Nuclear Fuel; and integration of Nuclear Material and Facility Stabilization activities across the ORR and with the National Spent Nuclear Fuel Program.

The project will place facilities at ORNL in a safe, stable, and environmentally sound condition, suitable for an extended period of minimum S&M as quickly and economically as possible. All facilities are expected to be managed by the D&D Program following deactivation/stabilization actions by Nuclear Material and Facility Stabilization. In the areas of spent nuclear fuel, this project will examine and characterize spent nuclear fuel as necessary; stabilize the fuel as required for environmental safety and health; provide interim storage and management; and replace or modify facilities that cannot meet current standards.

The Nuclear Material and Facility Stabilization project is followed by long-term S&M for facilities deactivated. Costs for long-term S&M are included in the OR-43201 ORNL WOC RA PBS. The subprojects are:

Isotopes Facilities Deactivation (189)
National Spent Fuel Program (188)
High Ranking Facilities Deactivation (231)